The CTARP Energy Facility Siting Study

Vol. I: Coastal Facility Siting and the National Interest

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Prepared for the Office of Coastal Zone Management

by

The Center for Technology Assessment and Resource Policy/Department of Engineering - Economic Systems/Stanford University/Stanford, California 94305

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Volume one. Coastal facility siting and the national interest.

Volume two. Impact analysis and case studies.

Volume three. Interests, conflicts, and energy: conceptual foundations.

Volume four. Supplementary material: the energy system.

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The CTARP energy facility siting study.

The Center for Technology Assessment and Resource Policy/Department of Engineering-Economic Systems/ Stanford University/Stanford, California 94305

THE CTARP ENERGY FACILITY SITING STUDY

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FOREWORD

The concept of the "national interest" is a fundamental element of any nation's political history and of its current method for managing its public affairs. There is general agreement that something is in the national interest if it is in some sense best for the nation--this interpretation being a direct extension of the meaning of an individual's interest. However, a moment's reflection indicates that this concensus merely shifts our attention to the very difficult question of determining what is best for a nation. This Study suggests that what is best for a nation cannot be determined without careful attention to the public decision-making institutions established by the citizenry via their consitutions.

The people of those nations whose governments are organized as federal systems have agreed via their constitutions to procedures for determining national interests that are often characterized by a dynamic tension between central and local authorities. Nations like the United States, Canada, and Germany have decided, from a procedural perspective, that it is in their national interest to assign sovereign jurisdiction over certain matters to component governments within their federal systems. Yet, as these nations have developed larger populations, more sophisticated economies, and closer links with the global community, their central governments have tended to assume ever greater responsibility for the definition and pursuit of the national interest.

At moments of grave crisis, such as external attack or extreme economic adversity, the central government's definition of the "national interest" is usually widely shared because of the severe consequences that are likely

to affect all of a nation's people. But in normal times, the specific national interests are not evident by concensus. Instead, there are usually many competing interests each of which is seeking to establish its legitimacy by successfully asserting that a particular form of self-interest is coincident with the national interest.

Through the many levels of government in our federal system, the bargaining among competing interest groups for official sanction for their self-interested positions constitutes the daily conduct of public affairs in the United States. In many, if not most, cases this bargaining continues through coalition building, accommodation, clarification, and compromise. Ultimately, the Executive Branch, whether on its own initiative or as a result of an act of Congress, provides the official sanction of the "national interest" to some particular interest.

Even then, the competition does not stop. The "national interest" in full employment is, for example, constantly in competition with the "national interest" in price stability and the avoidance of inflation. And the "national interest" in environmental protection is frequently in competition with the "national interest" in economic growth. Examples like these have led many to assert that there are conflicting national interests. Actually, these are conflicting national objectives and the real national interest is determined by trading off between these diverse objectives.

When a national objective is officially recognized, some administrative mechanism (agency, commission, etc.) is usually established for implementing procedures to advance the objective. A major test of such mechanisms is their ability to provide institutional arrangements (decision-making processes, public participation, information gathering and evaluation, etc.) that will permit competition between contending "national interests." This competition is at the

heart of the dynamic process by which national objectives and national interests evolve. The more open these institutional arrangements are to changing circumstances and the more flexible they are in responding to bargaining and competition, then the more likely they are to reflect the national interest in name as well as in fact.

The accelerated siting of energy facilities in the coastal areas of America, caused by the depletion of onshore energy reserves and a growing dependence on offshore and overseas energy resources, has brought new challenges to the concept of the national interest. Clearly, it is a national objective for the United States to be provided with dependable, adequate, and competitively priced energy resources. Just as clearly, it is a national objective that the beauty, ecological structure, public access, and marine life of America's coastal areas be preserved. The process of determining the national interest in the siting of coastal energy facilities is the process of balancing these and other objectives, both substantive and procedural, in the course of making actual decisions.

The Coastal Zone Management Act of 1972 (CZMA), as amended, deals with these questions by encouraging the states to develop comprehensive programs to manage their coastal resources. The sum of these state programs constitutes the nation's effort in coastal management. A major provision of the CZMA is that each state program "provide for adequate consideration of the national interest in planning for, and in the siting of, facilities...which are necessary to meet requirements which are other than local in nature."

The CZMA does not define the meaning of either an "adequate consideration" or of the "national interest." Such definitions were left to be worked out during the course of the implementation of the Act. Yet, the absence of further

guidance on these issues has proved to be a major obstacle in the implementation of the Act. This has been the case because of the tough challenges posed in practical attempts to resolve conflicts between the multiplicity of interests, each seeking to advance particular objectives in the use of coastal areas in different amounts. The Act probably could not have legislated institutional arrangements for resolving such conflicts. Instead, these arrangements have had to emerge from further experience and study of the issues involved.

The Center for Technology Assessment and Resource Policy (CTARP) at Stanford University sought the opportunity to conduct a study of the "national interest" provision of the CZMA, because of its experience in analyzing coastal energy facility siting issues and the involvement of its Congressional Fellows in the passage and implementation of the CZMA Amendments of 1976. The Study which follows was conducted in conjunction with a training program in policy analysis and technology assessment for mid-career professional staff of the National Oceanic and Atmospheric Administration (NOAA), U. S. Department of Commerce, which is responsible for administering the CZMA.

From its inception, NOAA has been primarily a scientific and information agency. However, acts of the Congress, like the CZMA, have assigned to NOAA substantial responsibilities for resource management and policy implementation in the use of coastal and marine resources. Further acts of Congress, assigning additional resource management responsibilities to NOAA are anticipated as a national ocean policy is defined and developed.

Due to the nature of its original charter, NOAA has not had a substantial professional staff specifically trained and experienced in resource management. The purpose of the training program at CTARP for NOAA mid-career professional

staff was to help build a cadre of resource management specialists. An integral part of the training program has been to involve the NOAA staff members in topical studies of high priority resource management questions now confronting the agency. Thus the NOAA professional staff assigned to the training program were applying the skills of policy analysis and technology assessment to practical problems of concern to NOAA at the same time they were learning to master the analytic skills.

The goal of the program has been twofold: to provide NOAA with high quality, comprehensive studies of recently enacted resource management tasks and to train NOAA mid-career professionals in the analytic techniques needed to utilize these studies in implementing the agency's resource management responsibilities. A year ago, CTARP published a study on the implementation of the Fisheries Conservation and Management Act (FCMA) which set forth a computer-based fisheries management system for achieving the goals of the Act. That system is now being utilized within NOAA and is being refined for application to specific fisheries.

It is anticipated that this study of the "national interest" provision as it relates to the energy facility siting amendments of the CZMA will be similarly utilized. Of the five NOAA mid-career professional staff members, assigned for training at CTARP for the academic year 1977-78, three conducted case studies which are presented in Volume II of the Study. These case studies demonstrate the ability of the NOAA professionals, not previously experienced in resource management, to perform analyses of specific and extremely complex issues of coastal management.

This Study, like its companion study of the Fisheries Conservation and Management Act was made possible by the support of Dr. Robert M. White, former Administrator of NOAA,

and Mr. Robert W. Knecht, Associate Administrator of NOAA, for Coastal Zone Management. CTARP is most grateful for the opportunity of conducting comprehensive studies of high priority marine resource management programs which this support has made possible.

This study of coastal energy facility siting and the national interest has been conducted under the overall management direction of Jeffrey D. Roughgarden. He has experience and advanced degrees in both economics and mechanical engineering, Mr. Roughgarden participated in the Congressional Fellowship Program in Technology Assessment and Resource Policy supported by the Office of Coastal Zone Management. He served on the staff of the National Ocean Policy Study, U. S. Senate, during the period that the energy facility siting amendments to the CZMA were being enacted by the Congress. Through his firsthand experience with the issues involved, his high standards of analytic rigor, and his commitment to clear and effective presentation of complex questions, Mr. Roughgarden together with his colleagues have contributed substantially to advancing our understanding of the difficult challenges of energy facility siting in a federal system.

John T. McAlister, Jr.
Director

PREFACE

The Center for Technology Assessment and Resource Policy (CTARP) is associated with the Department of Engineering-Economic Systems (EES) at Stanford University. Within the Department, the Center serves as a focus of research and professional education by applying analysis to major problems of public policy and by providing internship opportunities within industry, U.S. Government Executive agencies, and Congressional staff.

The CTARP Energy Facility Siting Study resulted because of a fortunate combination of compatible objectives, experience, and resources - and as a result of over seven man-years of professional effort over an eighteen month period. As a requirement for funding the Study, the federal Office of Coastal Zone Management (OCZM), U.S. Department of Commerce, defined the Study's specific mission as that of seeking ways to improve the processes by which state coastal management agencies consider the national interest when evaluating facility siting proposals. The principals and staff of the Center maintain an ongoing interest in the theory and practice of energy facility siting and the determination of the national interest. Many of those who worked on the project had previous experience in analyzing earlier energy facility controversies as research assistants for Center publications[1] and as interns with OCZM and Congressional Committes.

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[1] For example:

John T. McAlister, Jr., William K. Linvill, and Harry D. Saunders, eds., A Technology Assessment of the Impact on California's Coastal Zone from Proposed Offshore Oil and Gas Development. (Stanford University - CTARP, July, 1975.)

John T. McAlister, Jr. and William K. Linvill, eds. Alternatives for Alaskan Natural Gas: A Technology Assessment of Transportation and Utilization of North Slope Natural Gas. (Stanford University - CTARP, July 1976).

Although acknowledgements precede the several parts of this Study, we would especially like to thank Mr. Robert W. Knecht, Associate Administrator for Coastal Zone Management, for his continued support of the Center and this Study. In addition, we are most appreciative of the interest shown by Ms. Deborah J. Stirling, Staff Director of the National Ocean Policy Study, U.S. Senate Committee on Commerce, Science, and Transportation and by Dr. Thomas Kitsos and Mr. Wayne Smith, professional staff to the U.S. House of Representatives Merchant Marine and Fisheries Committee. Of course, those individuals and the many others who assisted us during the course of the Study bear no responsibility for whatever oversights and errors that remain.

Jeffrey D. Roughgarden
February 1, 1979.

Part one.

Conceptual summary.

Jeffrey D. Roughgarden.

I. ENERGY FACILITY SITING CONTROVERSIES.

Totalitarian nations do not suffer the strains of energy facility siting controversies. Technocrats evaluate and select alternative means of energy supply and employ the force of the state to ensure the construction and operation of the chosen facilities. Despite the complexity of the technical alternatives, the decision process for implementation is really quite simple.

But as even the occasional viewer of network news is aware, things are markedly different in these United States. The list of recent energy facility siting controversies is very long [1]. It includes resistance to coastal energy facility systems such as those implicit in proposed federal sales of leases for offshore oil and gas development in frontier areas, proposals for marine oil terminals and transportation systems, and proposals for liquefied natural gas terminals and transportation systems. But the list is not restricted to coastal activities - it also includes controversies over proposed coal, oil, and nuclear-fueled power plants, over the construction of dams

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[1] Volume 2 of this Study, entitled Impact Analysis and Case Studies, describes three West Coast energy facility siting controversies. The first part contains a demonstration analysis of the effects of southern California offshore oil and gas production from tracts scheduled for auction during lease sale #48. Although this presentation is technical, the remainder of the Volume contains case studies with greater emphasis on the politics of the decision process. The second part discusses the Standard Oil of Ohio (SOHIO) proposal to construct a marine oil terminal and pipeline originating in Long Beach, the history of southern California OCS controversies, and controversies over alternatives for supplying crude oil to the states of the Pacific North-West.

for hydroelectric power and energy storage, over the mining and transportation of coal and nuclear fuel, and over the ultimate disposal of residual products associated with all fuels and all processes. As this list indicates, the substantial variety of the controversies is indeed rich.

A principal contribution of this Study is the development and application of a conceptual framework capable of unifying these apparently diverse controversies and of facilitating their resolution in an informed and equitable manner. At the heart of this framework is a rigorous and operational definition of when the siting of a facility [2] is in the national interest. Although the approach to national interest advanced in this Study is related to the concept of "net national benefits", it has dramatically different ramifications. The latter view leads, however unintended, to an inexorable centralization of decision making authority within the federal government. In contrast, the perspective taken herein is explicitly sensitive to the delicate balance of power within the levels and branches of the federal system and to the desirability of maintaining the incentive system embodied in free enterprise.

The view of the national interest developed and defended herein leads to the conclusion that "adequate consideration" of the national interest should not require a state to make

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[2] It is worth emphasizing at this point that the term facility siting is given a very broad context in this Study. The problem of whether a particular piece of machinery is best located here or several miles down the road is not addressed except in the course of more general analysis. The problem addressed here is the interaction of the public sector with the energy industry in determining the evolution of the energy system - the entire complex of equipment and procedures used for national energy supply and consumption. See Volume 4. Supplementary Material: The Energy System.

siting decisions on any basis other than the state's own interests. Facilities with net national benefits will usually be sited if state decision processes truly reflect the following three general characteristics:

- First a state's program must have the capability to consider adequately its own interests. Institutions and procedures must exist which ensure that coastal resource allocation decisions are made according to the true costs and benefits to the state. This means that there must be a capability of determining the effects of alternative proposals for utilizing coastal resources and an ability to make trade-offs and otherwise value these effects in order to determine which alternative is best - is in the state's interest.

- Second, a state's program must not only allow, but must also encourage bargaining. This means that the program should not contain prohibitions or inflexible policies that would impede bargaining. The program should have the capability of analyzing, receiving, and introducing modified proposals (conditions, stipulations, in kind or monetary compensation plans, log-rolling). The capability to be flexible and to bargain over redistributions of facility effects should be an integral part of the state's energy facility planning process, as called for in section 305(b)(8) of the Coastal Zone Management Act.

- Third, the analytic and bargaining staff of a state's management program should be explicitly connected to similar staff at the federal level (for national interest purposes) and where possible at the local level (for regional interest purposes). These connections are intended to establish the state's capability to absorb information regarding the national and local effects of alternative proposals. A network of this sort enables the state to act as a focus for bargaining over suitable redistributions.

While these characteristics can be stated rather simply, their effective implementation requires a sound understanding of the structure of energy facility siting controversies and alternatives for conflict resolution in the context of the nation's federal system of government. The remainder of this summary is devoted to an explanation of these essential concepts.

A. Problems With the Siting Decision Process

Energy facility siting controversies occur because of the large number of individuals and groups with the right or authority to influence decisions on siting proposals. The "players" or agents of the "energy game" [3] include the developers who may be private firms or government agencies, regulators of independent status or located within the executive branches of the various levels of government, interest groups concerned with the one or more of the multitude of effects associated with energy facilities, (e.g., air pollution, increased employment), foreign entities capable of affecting the quantity and price of energy supplies, legislatures at all levels that are disposed toward resolving specific controversies by statute, and of course, the courts that are charged with interpreting and rectifying the myriad of procedures that define the nation's energy facility siting decision process.

As the opening reference to the totalitarianism suggested, one way to eliminate energy facility siting controversies is to eliminate all but one of the players. The developer is, of course, sine qua non and so is a logical candidate for survival. The press releases of energy industry associations at times seem to call wistfully for a return to the paradigm of Adam Smith's laissez faire economy. Apart from the fact that this nation has never had a laissez faire economy, such a "return" would require massive revisions of statutes and

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[3] These ideas are more fully developed in "The Strategic Energy System," Appendix C of Volume 3.

indeed of the Constitution itself [4]. The other plausible candidate for survival in the energy game is the government. But the government has many levels, many branches, and many agencies and entities within each branch. Also, of course, positive governmental control would imply socialism of one form or another and it is assumed that this alternative would be rejected by the American people.

So the conclusion is inescapable. The nation, if it is to retain any semblance of free enterprise and democracy, will for the foreseeable future continue to site energy facilities according to a complex multi-party decision process. This process is not static, but evolves continuously. This Study seeks to influence the direction of its evolution.

Unlike energy and environmental resources, there may be an oversupply of reports on energy facility siting. Many of these reports describe the adverse ramifications of the current decision process on the economy and the environment:

- For example, industry frequently reports that the present permit process induces shocks, discontinuities, and uncertainties, in the flow of energy supplies. The perils of "running the traps" in the permitting process translate into greater uncertainty over the timing, quantity, and existence of profits. It must be recognized that profits are the incentive for supply and that if expected profits from domestic energy activities are significantly lower than those from other alternatives available to developers, then

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[4] Although this Study considers a wide variety of possible remedies, practicality and immediate relevance suggest that emphasis be placed on incremental reforms. However, more radical remedies such as those implied by libertarian political philosophy should not be rejected summarily when considering longer run improvements.

the capacity for domestic energy supply will diminish. While the consumer does not much care about the source of his energy supply, the availability of supplies at reasonable prices should be of concern. Hence the simple view that profits are bad for consumers is clearly false.

- The federal government and the financial community are concerned over the monetary effects that result from the huge quantity of oil that is imported daily to make up for shortfalls in domestic energy production [5].

- Furthermore, all parties agree that the current decision process is capable of unconscionable delay - a lag of fifteen years from conceptualization to operation of a facility is not uncommon. Apart from the direct financial, research, and regulatory costs arising from this long span, the lag enforces technological rigidity by discouraging new and superior designs from becoming rapidly operational.

- Environmental and consumer groups express concern not only over the direct adverse effects of energy facilities, but also over the ramifications of the marginalist nature of the current permit process. Even if one facility has positive benefits, it cannot be assumed that any number of such facilities have benefits in proportion, much less benefits at all.

In response to such concerns, energy agencies are proliferating at all levels of government for the purpose of analyzing cumulative effects of energy development. Given the tremendous powers of government, it is a small step from energy planning to energy development. But as noted above, the wisdom of nationalizing the energy system is hardly apparent.

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[5] The issue of domestic versus foreign energy supplies is discussed briefly in Chapter I of the "Impact Analysis" part of Volume 2.

But the problems resulting from the current national facility siting process are not solely of a technical or economic nature. The aftershocks of siting controversies seem to be weakening the basic structure of society. Public response to demonstrated past failures of the market system (notably environmental degradation) led to an extension of government control over the energy system and the environment. The failure of the current quasi-public system to reduce the frequency and intensity of siting conflicts could in time lead to erosion of the public's faith in government.

For example, another symptom of the inadequacy of the current process is the increasing frequency with which specific siting decisions are made by the legislative and judicial branches. Inasmuch as these bodies have profound responsibilities over the gamut of human concerns, they rarely have the specialized expertise needed for informed facility siting decision making. Sensitivity to the balance between branches is critical when evaluating alternative decision processes. To preclude arbitrary executive power, provisions must exist for recourse to the other branches. But if the executive is habitually reversed on appeal, its agencies become ineffective and all but superfluous.

In addition to the imbalance between branches, there are increasing risks of disturbing the balance between levels of the federal system. Dissatisfaction with the outcome of conflict resolution processes fosters a desire to change these processes. Concern over the difficulty in siting facilities with net national benefits has led to an expansion of federal versus state authority and suggestions for even more extreme measures. The predictable response is a concurrent increase in regionalism. Action induces reaction.

While this list of problems is worrisome enough, some of the "remedies" in current vogue are even more alarming. As governmental institutions are attacked for their failure to resolve the mass of siting controversies, there is a natural tendency to resort to secrecy and elitism. It is tempting to transfer decision-making responsibility to some cadre of experts. Claiming crisis and possessing formidable credentials, this group may believe that it can make decisions which are "best" for the nation, and in so doing appropriate a large part of our freedom. The only expert on what is best for an individual is that person himself. While advice is helpful, the final choice is best made by the individual or his chosen representatives.

Finally, the solution to energy facility siting controversies does not lie in public financing of the litigation of interest groups; it does not lie in exacerbating the imbalance between the levels and branches of the federal system; and it does not lie in gradual nationalization of the energy industry.

B. The Structure of Siting Conflicts.

This Study argues that the remedy to facility siting problems can be found by examining the fundamental structure of siting conflicts and by developing and implementing a rigorous notion of when the siting of a facility is in the national interest. When serious cracks continue to propagate in the walls of a building, it is structural engineers and not plasterers that are called for. Facility siting problems will not go away on their own because there will be a continuing demand to site central energy facilities and because the institutions with oversight of such decisions are, like others, most resistant to change.

If it were feasible and economic for every individual to own personal energy resources, convert them to a usable form, and isolate others from the impacts of his activities, then each individual could independently weigh the effects of his supply and consumption decisions, and act according to his interests. There would be no energy facility siting problem since there would be no demand for central energy facility sites. But reality dictates otherwise. There is a demand for sites because the distribution of energy resources is all but fixed by nature and does not correspond well to the distribution of energy consumers. Furthermore, it is not economic to supply personally all of one's energy demands because the technology for discovery, recovery, conversion, and distribution of energy resources exhibits strongly increasing returns to scale (at least at low to modest levels of production). So there will be a demand for central energy facilities.

Conflict arises inevitably because it is impossible to isolate others from their localized adverse effects. There are winners and losers. In the absence of redistributional measures, the non-uniform distribution of facility effects is inequitable and constitutes the fundamental cause of siting

controversies. Even given these sad facts, the problems cited earlier need not occur were there group decision procedures capable of flexible response. But government institutions, like most organizations, resist changes with a will that belies their inanimate nature. Criticism of an institution and pressure for reform is taken subconsciously by members as a threat to both their financial and psychic security. Nevertheless, this Study does propose modifications of current decision procedures. It rejects the cynical view that government need be a monument to past problems.

Because of the strategic nature of the decision process, the substance of facility siting controversies generally comprises three interrelated issues. These may be called the supply alternative, conservation, and siting issues.

From a logical, central planning perspective, the consumption/conservation question would be addressed first. What are the expected regional or national demands for various final energy inputs (e.g., electricity, gasoline, fuel oil, coal, etc.)? Given these projections, it would be logical to consider the supply alternatives available and to select the combination which, by general characteristics, minimizes economic and environmental costs, while attaining the energy supply objectives. Then, since there is usually some locational flexibility, the logical central planner would optimize his plan by selecting specific sites such that localized, "micro" adverse effects were minimized. As would be expected, the recently created energy agencies tend to follow this sort of procedure to the extent that their authorities permit. The publications of California's Energy Resources Conservation and Development Commission and the federal government's struggle to develop a national energy plan are cases in point.

But with the exception of regulated utilities proposing facilities whose effects are felt only in one state (and so are susceptible to central planning), the real pattern of decisions is quite different. Energy firms carefully evaluate demand and supply alternatives and then risk their assets on the assumption that their answers are correct. The national energy plan is the theoretical aggregate of developers' plans. But plans are not facilities, and permits are required to construct and operate facilities, to supply energy, and to make profits.

The purpose of the permit system is to eliminate or mitigate potential adverse effects suffered by some as a result of others' decisions. Permits are currently the prevalent mode of dealing with economic externalities. Things were not always so. Common law has long recognized the rights of individuals to sue others for damages. Nevertheless, rather than extending this body of law to deal effectively with common "bads" such as pollution, or considering other alternatives such as a system of taxes and subsidies operating within a market context, legislatures have chosen to establish permit systems. Fortunately, permit systems can be made to work with acceptable efficiency, but only if considerable thought and extreme care characterize their design. Therefore, improvement and not replacement of the nation's facility permitting system is a principal topic of this Study.

Facility siting often does not follow the logical decision sequence above because the government, with its legitimate concern for externalities, enters the process at the tail end of the siting process. However, once admitted, all prior decisions are made subject to review. Originally, this occurred because developers were prone to give local residents what amounted to "take it or leave it" propositions. In the ensuing conflict between local residents,

many opponents recognized the tactical advantages of concealing their self-interest in avoiding localized adverse effects by giving great emphasis to the potential for conservation and more attractive supply alternatives elsewhere. Presently, a sizable constituency exists which has become truly concerned with energy policy alternatives (in contrast, for example, with food policy alternatives, there being no large farm siting problem). As can be expected, agencies have been established as a reflection of the strength of these groups. But as noted, these agencies as yet do not have the positive authority to implement their policies, except to the extent that they can influence developers, public utility comissions, and permitting agencies. As a consequence, the fiery end of the decision process is the final siting phase - the part where diverse economic, political, and social views converge with the goal of influencing not only the substance of a particular siting decision, but the nature of the decision process itself.

Strategic analysis provides another way of dissecting facility siting controversies which seems useful for organized thought. (Strategic analysis comprises techniques ranging from game theory to organizational psychology to the art of politics.) The activities of players of the energy game that are directed toward promoting, modifying, or preventing the siting of a facility are said to be "base-game" actions, while political activities directed toward changing the authorities of other players (the rules of the "base-game") are said to be "super-game" actions. In general, players operate at both levels, allocating resources to political activity as the tactical situation of the super-game warrants and to siting controversies proper in accordance with the likelihood of success. The super-game forays of the players, whether they be industrial associations, interest groups, or the levels and branches of government, should not be seen as intrinsically undesirable. The right to attempt to change the rules of the game prevents undue

ossification of the nation's collective decision process. Nevertheless, extraordinarily intense political activity has a destabilizing effect on the economic system and these effects are real costs of inadequate public decision processes.

Strategic analysis suggests a classification scheme for the elements of the general facility siting controversy. In addition to the fundamental source of conflict - the non-uniform distribution of effects, conflict may arise because agents have different perceptions of or different information on the nature and distribution of effects. This problem seems quite widespread, but fortunately can be ameliorated with relative ease.

Secondly, players may have different basic preferences over facility effects. Again, it is fortunate that this problem does not seem too severe. Oil company executives do not choose (having the luxury of choice) to live in polluted areas and environmentalists enjoy driving (at least to the boundaries) of national parks.

This issue of preferences is often confused with the distribution of effects. For example, it may be suggested that the preferences of federal officials charged with offshore leasing must be different from those of coastal residents, or why would they hold lease sales? But the conflict here arises from the distribution of effects, and not from dissimilar preferences, as can be verified by considering the situation if the coastal residents were Washington officials and the officials owned the coastal residences.

Finally, political conflict between players may arise out of dissatisfaction with the rules (the assignment of rights and authorities) of the base-game over the siting of facilities proper. Theorists ranging from Marxists to libertarians have suggested that all political systems are

inherently unstable. History can reasonably be interpreted to verify this thesis. This instability may well derive from self-interested political action and the oft-noted phenomenon of the rich getting richer - the powerful, more powerful. There are two reasonable courses of action. One is to accept the pattern of history, allow the current system to die of asphixiation, and prepare for some new order. The other is to call for a disinterested reappraisal and rectification of the nation's political economy, in the hopes of preserving the good elements of free enterprise and the federal system.

C. Siting in the Context of Coastal Management.

Actions by the Congress have both exacerbated the intensity of siting conflicts and paved the way for their informed resolution. Presently, the exacerbation has been realized while a just system of resolution remains yet in development form.

The uneven distribution of effects is an intrinsic technical characteristic of central energy facilities, and as such, has existed as the fundamental source of conflict for a long time. Yet prior to this decade, conflicts were less frequent and less intense because local residents lacked both the awareness and the means to oppose effectively the external costs being imposed on them. But the turbulence of the late sixties reversed the "normalcy" of the fifties in areas other than military policy alone. The environmental movement blossomed as the public became cognizant of the tremendous damage being wreaked by existing patterns of supply and consumption. Congress responded with legislation ranging from the Federal Water Pollution Control Act to the Clean Air Act to Reorganization Plan No.3, establishing the Environmental Protection Agency (EPA). All players of the energy game now had effective controls. The battle lines were drawn for the tragic war of the environment versus the economy, of which siting controversies occupy but one front.

There is no doubt that the nation was carelessly degrading its environment, that this imposed significant costs both in the long and short run, and that some governmental action was required to reverse bad incentives that developers and consumers faced. But the actions noted above were only part of a reasoned response. Fortunately, in some of its less prominent actions, Congress laid the groundwork for erecting the needed public decision-making

institutions.

Coincident with the establishement of the EPA, Congress acquiesed to Reorganization Plan No. 4, creating the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce. Originally envisioned as a scientific and information gathering agency, NOAA was quickly assigned responsibilities that would draw it from the political security of the computerized laboratory. Principal among these was the Coastal Zone Management Act of 1972 (which did not become operational until early 1974).

The Act placed considerable emphasis on wise management - on the balancing of objectives in the face of limited opportunities. But even more remarkable was the institutional framework established for coastal management. The Act relies upon the role of the states in land use planning in the federal system - coastal management was explicitly a voluntary state process. The role of the federal office was that of providing informational and financial assistance and of establishing minimal standards for the structure of a state's management program. In contrast, for example to the Clean Air Act (which is effectively administered by the federal government) these standards were with regard to the state's decision process - not the substantive content of a state's management policies. The philosophy was that land use should remain a state concern, but that the federal government had an interest in encouraging states to develop and administer effective management programs for coastal lands and waters. But oddly, the relatively heavy hand of the federal government in the substance of air and water quality management has served to compromise this philosophy.

Given the environmental controls established in the early seventies, facility siting controversies rather

predictably increased in frequency and intensity. This combined with the prominence attached to energy matters following the oil embargo of 1973 and the subsequent quadrupling of oil prices, led to renewed and strengthened Congressional concern over energy facility siting. At the time, coastal management programs were barely in existence yet they were wrestling with problems of a magnitude and scope that had long stymied better funded and more politically secure state and federal agencies. With the passage of the extensive Coastal Zone Management Act Amendments of 1976, additional responsibilities were given to the federal and state coastal management agencies. Yet they remained raw recruits surrounded by hardened veterans of every philosophy.

The Amendments attempted to ease the siting of coastal energy facilities (particularly oil-related facilities) having net national benefits by making grants, loans, and other financial assistance available to states [6]. Unfortunately, these attempts at redistribution seem not to have reduced siting tensions significantly. Apart from the fact that the loans carry an unattractively high interest rate, the grants are all but restricted to oil-producing activities. Furthermore, because they are based on broad aggregate measures of energy activities, are not related to the special characteristics of particular sites and facilities, are awarded on a yearly basis, and are of usually minuscule amounts, the grants are seen more as general revenue sharing and less as direct compensation for facility imposed external costs. Despite intentions to the contrary, the unfortunate result was that a new arena was established in the energy game - one in which states bicker over the allocation of the yearly appropriation to grants.

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[6] Impact assistance, along with many other current issues in coastal management, are discussed in Chapter III of the following part of Volume 1, entitled "Policy Analysis".

So with the limited success of the Amendments in easing controversies over the siting of coastal energy facilities with net national benefits, another strategy has emerged having most alarming consequences. The strategy brings to the foreground two unique and untested provisions of the original Act: the so-called national interest and federal consistency provisions [7]. The federal consistency provision requires that federal actions (e.g., development projects, licensed and permitted activities, assistance programs) significantly affecting the coastal zone of a state with an approved management program be undertaken in a manner consistent with that program. Originally, it was hoped that this provision would provide an incentive to states to develop programs. From a federal perspective, the consistency clauses transferred power to the states, allowing them to assert effective control over the conservation and development of their coastal resources. From a state perspective, the consistency provision was all but vacuous since the states already had sufficient authority to preclude undesirable energy facilities (with the exception of offshore oil and gas development in federal waters). However, the states did take note of another provision within the consistency section which empowered the Secretary of Commerce to review and mediate consistency disputes between states and federal agencies.

From its inception, the national interest provision had been a potentially effective weapon for attacking state programs and precipitating consistency disputes. With the failure of the impact programs to ease siting tensions, this weapon is being mobilized for a variety of related, emerging strategies under consideration by federal and developer interests.

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[7] These provisions are discussed more fully in Chapter III of the following part.

The national interest provision, which figures so prominently in this Study, requires that, as a condition for federal approval, management programs

> ... provide for adequate consideration of the national interest involved in planning for, and in the siting of, facilities (including energy facilities in, or which significantly affect such state's coastal zone) which are necessary to meet requirements which are other than local in nature. [8]

This provision became part of the Act largely to balance fears that the consistency provision would emasculate the federal government and bring about an abrupt halt to the siting of any facilities on the coast. Of course, the consistency provision has had no such effect and now the national interest provision threatens to tilt the scales to the other side.

For example, in September of 1977, the American Petroleum Institute, et. al., brought suit in federal court to enjoin approval of California's management plan,citing several problems, one of which was that the program contained no "legally enforcable commitment" to give adequate consideration to the national interest [9]. Although California was vindicated, similar suits followed in other states and some have yet to be resolved. Although it appears that program approval will not generally be enjoined, future skirmishes in the form of specific consistency disputes can be expected.

Another strategy of developers and proponents of centralized government involves amendments to the Act which would

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[8] Section 306(c)(8) of the CZMA, amended.

[9] See Chapter III of the following part.

make coastal management mandatory [10]. The logic behind this proposal is that of subjecting all states to the mediation provision and then invoking a favorable interpretation of the national interest to advance the siting of facilities with net national benefits. Such a plan is clearly coercive.

This Study argues against mandatory coastal management and argues against any interpretation of the national interest which would force states and localities to accept projects imposing net local costs. More importantly, this Study proposes a natural modification of current siting processes in which coastal management agencies play a major role, and which all but ensures that facilities with net national benefits will be sited, and will be in the interest of the developer and every level of the federal system.

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[10] This proposal is clearly analyzed from other perspectives and ultimately rejected in:

Public Support for Coastal Zone Management Programs: The Implementation of the Coastal Zone Management Act of 1972, a Report by the Coastal Zone Management Advisory Committee. (Washington, D.C.: U.S. DOC, NOAA, OCZM, June 1978).

II. THE NATIONAL INTEREST: RHETORIC, THEORY, AND PRACTICE.

Persons concerned with energy facility siting and coastal management have at least two reasons for seeking some understanding of the concept of the national interest. First, these individuals, like all citizens, have a moral obligation imposed by our democratic form of government, to analyze the philosophical foundations and practical ramifications of a term used to justify simultaneously both economic development and environmental pristinity, not to mention war and peace. However, putting such idealism aside, these individuals have at a minimum, a practical interest in the strategic implications of various interpretations of the concept in the context of coastal facility siting and the provisions of the Act. As noted earlier, these strategic implications are not fuzzy concepts - they have to do with the hard realities of the balance of political and economic power between the public and private sectors, and among the levels and branches of the federal system. This is the stuff on which governments ultimately rise and fall.

We are all familiar with the most common use of the national interest - with its value as a rhetorical device. Given any public policy controversy large enough to warrant the attention of federal officials, both sides are apt to assert that their proposals are in the national interest and the others' are not. So at first glance, the term national interest seems anything but conducive to organized thought and seems hardly to deserve any analytic effort toward rectification.

But with its fateful inclusion in the original Coastal Zone Management Act, investigations of the national interest have broken from their philosophical heritage and moved into the sweaty realm of public administration. Although the provision may have been originally inserted for rhetorical purposes and for the sake of Congressional compromise, it

stands now as a criterion for the allocation of millions of dollars of federal funds and, indirectly, as an unknown influence on the viability of investing billions of dollars in coastal facilities.

The word "interest" has a variety of related meanings which are often blurred by careless usage. This Study is concerned primarily with statements of the form "u is in A's interest," where u is an action and A is an individual or a group, like the nation. This is because one objective of the Study is to analyze the content and implications of statements like:

- The siting of Standard Oil of Ohio's proposed Long Beach marine oil terminal and pipeline is in the national interest.
- Environmental quality is in the national interest.
- Energy is in the national interest.
- Good weather is in the national interest.

This Study argues that only the first statement in this list is well-defined (i.e., makes any real sense), and this of course, is not the same thing as being correct. Things can make sense and not be correct, but things which are vague or meaningless cannot be correct, and so should not be criteria for the administration of federal laws or the allocation of public funds.

Recall that the Act requires that approvable state programs " ... provide for adequate consideration of the national interest involved in planning for, and in the siting of facilities. . ." The syntax of this phrase differs from the statements above. This phrase is of the form "A's interest in v," where v is not restricted to being an action, but may be just about anything.

It is important to recognize at the outset that this Study does not attempt rectification of the concept of the national interest, as used literally within the Act. This is because

the phrase cited above, while not quite meaningless, is simply too vague to serve adequately as a basis for public decision-making. Despite our best efforts to the contrary, we concur with those state officials who regard the wording of the provision to be at best a nuisance, at worst a veiled threat.

But while valid objections can be made against the wording of the provision, none can be made against its intent. The intent of the provision is, quite plainly, that of discouraging parochialism and requiring that states establish facility siting decision processes capable of accommodating facilities with net national benefits. The critical question then is the nature of the decision process and the criteria for accommodation. There must be compromise - states cannot act as independent nations, nor can they be expected to roll over at every whim of the Secretaries of Energy and the Interior.

This Study suggests that the way out of this dilemma lies with an analysis of the concept of the national interest, which when combined with an understanding of the structure of siting controversies leads to effective procedures for informed and equitable conflict resolution. [1] The result of this solution technique is that we focus more on developing a suitable concept of when the siting of a facility is in the national interest and less on the more abstract and less easily implemented idea of "adequately considering the national interest." Put another way, we are more concerned with the just resolution of coastal facility siting controversies than with torturing the English language in an attempt to adhere to the letter of the Act, as currently written.

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[1] These topics are treated rigorously in Volume 3 and more informally in this Volume.

A. The Meaning of Interest Statements.

Apart from its financial meanings, the most frequent use of the word "interest" is to denote the presence of curiosity. To our knowledge, the term national interest is not used in this context since the concept of the innate curiosity of the nation is neither particularly useful, nor particularly easy to define.

It is, however, a short step from unrestrained intellectual curiosity to concern derived from the objective of welfare maximization. For example, an individual who naturally abhors mechanical matters may develop an interest in stratified charge carburation out of a desire to minimize the gasoline consumption of his next automobile.

The term national interest is used to denote this sort of derived curiosity in natural and social phenomena. For example, one might hear that the nation has an interest in the evolution of the earth's ozone layer or in the state of the Japanese economy. In such cases, it is important to ask whence the interest or concern derives. It may be that public officials simply recognize these phenomena as having an effect on the citizenry or it may be that these officials contemplate taking some actions which would change the way these things affect the nation.

This latter case of contemplating beneficial actions evokes the need to distinguish between preferences, objectives, interests, and constraints. Preferences are values or tastes used for comparing different potential states of affairs. For example, given the hypothetical choice, all citizens probably prefer less rather than more air pollution. Since the preferences of the individuals who make up this nation are all but unanimous on this choice, it is quite natural that the reduction of air pollution become a national objective. Objectives can be seen to be action oriented preferences.

But now comes the hard part. What actions are available for attaining this objective - for bringing about the preferred state of affairs? The first thing that comes to mind is that there are few, if any, feasible actions which will advance this objective without affecting others simultaneously. While denying permits for an energy facility will generally advance air quality objectives, denial will simultaneously retard energy supply objectives. This problem of rationally selecting from a limited set of feasible alternative actions the one which best attains some mix of objectives is the essence of an interest determination. The action selected is said to be in the decision-maker's interest.

It is indeed unfortunate that objectives are often wrongly converted into constraints. Objectives are goals and the progress toward any one must generally be slowed to permit progress toward others. Constraints are binding prohibitions. Thus, while objectives must be considered as an entire inter-related set, constraints permit the luxury of single-mindedness. The purpose of many special interest groups is to transform their objectives into constraints, held firm by the force of law. While societies have always imposed constraints on violent behavior and the like, it is not clear that the delicate balance of rational decision-making between economic and environmental goals is furthered by these increasingly frequent transformations.

The following example elaborates on these somewhat formal distinctions because of their importance for interpreting national interest statements. Consider the phrase "the national interest in the environment." As given, this is really a reference to a national concern, since the environment is not a specific alternative state of affairs (in which case we might have a preference statement), nor is it an action of any sort (in which case, we might be dealing with objectives or interests); rather it is a subject like stratified charge carburetors. But of course this phrase has the

recognized connotation of either the improvement, preservation, or reduced rate of degradation of the environment. While the general thrust of benevolence toward the environment is clear, which of the three generalized implicit actions intended is not at all clear. Note that by making explicit some generalized action, the phrase can be converted to a proper objective, which in turn implies an assertion of national preferences.

The consequences of all this vagueness is that recipients of a directive "to consider the national interest in the environment" will interpret it as they choose. Specific actions taken in nominal accordance with the statement may have dramatically different effects. Of course, the potential for these differences is of concern only to those who issue the directive and is welcomed by those who are to follow it.

While useful for expressing common dreams, the assertion of national objectives (particularly in the form of interest statements) is of limited, if not negative, value for getting on with the business of allocating public or private resources. The problem is that decisions must and will be made regarding the best action to take from a limited set of real and feasible alternatives and that a common characteristic of these alternatives is that they advance and retard different objectives in different amounts. Thus when a decision must be made on whether or not to site a coastal facility, it is of little help to be told that there is a national interest in the improvement of the environment and a national interest in increasing domestic energy production.

The prevalence of this sort of thinking has led many to conclude that the nation has conflicting interests and objectives. This is neither theoretically correct, nor is it a constructive statement from a policy perspective. Just as the interests of an individual are in conflict only if his

personality is not well-integrated, so the interests of the nation are in conflict only if the union is (or ought to be) in the process of dissolving itself. In fact, the interests of the nation are not in conflict; rather the process of determining what actions are in the national interest involves resolving the conflicting interests of the many distinct factions which make up the nation.

The idea of conflicting national interests is not constructive because it emphasizes factional differences and suggests the obvious remedy of dissolution. Our military metaphors of the previous chapter notwithstanding, problems like energy versus the environment are better conceived in terms of a paucity of desirable alternatives. That is, virtually every citizen acknowledges simultaneously the validity of the objectives of improving the environment and increasing domestic energy production, while differing on the exact nature of the appropriate trade-off. If the set of feasible alternatives is taken as fixed or otherwise ignored, attention is naturally focused on the differences between factions regarding trade-off policies. But if attention is focused on expanding the feasible set such that new alternatives are available which are preferred by all parties, then the emphasis naturally shifts away from conflict and toward cooperation. Note in particular that new alternatives derive not only from technological progress - there is much fertile ground yet to be uncovered in the area of sociological and institutional progress.

When someone says that the construction of a pipeline or the development of offshore oil fields is in the national interest, he is asserting his opinion that this action is the best among the nation's feasible alternatives for utilizing the resources required by the action under consideration. Thus, when a construction firm asserts that its proposed pipeline is in the national interest, it is saying that the

nation has no better use of the firm's capital and labor, the required land, and the nearby environment. This statement is at least in principle capable of being verified.

The critical elements of any interest statement and the elements which require careful analysis for verification are the implied notions of what is best and what constitutes the set of alternatives and their effects. These questions can be answered easily for individuals. If an action u is in an individual A's interest, then A is the only expert on what is best for A and furthermore, A or his chosen advisors determine the set of alternatives under consideration.

The situation is considerably more complex for groups. Since groups cannot think collectively, the questions arise of what is best for the group and what is the group's knowledge of alternatives and their effects? The next two sections deal with two practical answers to these rather abstract questions and describe the implications of each approach.

B. The National Interest and Net National Benefits.

For many purposes, it is natural to regard the nation as the aggregate of its citizens (or perhaps as the aggregate of individuals residing within its boundaries). If this idea is accepted uncritically then what is best for the nation becomes equivalent to what is best for this aggregate. It is via this route that the term net national benefits is associated with the national interest.

An action (like the construction of a dam for hydroelectric power) is said to have net national benefits if all of its effects, when aggregated over space and time, add up to a positive number. There is, of course, considerable scepticism over the validity of performing such aggregations. How can the risk to an endangered species be compared to an increment in hydroelectric generating capacity? How can this temporary increment be compared with the long term ecological change that will result in the flooded lands? How can the benefits for distant electricity consumers be compared with the costs for nearby residents? While there is no doubt that questions such as these pose analytic problems, ranging from severe to insurmountable, the plain fact is that decisions of this sort are made frequently - and these decisions imply that trade-offs have been made, although commonly in a rather hazy fashion. The point is that it is theoretically possible for an individual to make judgments of national benefits and that these judgments, while not purely objective and so subject to dispute, are made all the time.

Indeed, controversy over techniques for impact analysis has obscured more fundamental weaknesses with the net national benefits approach to the national interest. First, the existence of net national benefits, even from an aggregate perspective, does not imply that the associated action is the best alternative, since other actions could have even

greater net benefits. This rather obvious error is introduced by the practice of accepting or rejecting proposed actions, one by one, according to whether their cost/benefit ratios are greater or lesser than some arbitrarily fixed standard.

An initially attractive attribute of the net national benefits approach is its apparent egalitarianism. A dollar lost or gained by any individual counts the same in the sum. But the progressive income tax indicates that this sort of equality is not consistent with the nation's implicit incomes policy. However, this issue of equality is even more complex. The ideal as originally expressed in the Constitution had more to do with equal economic, political, and legal opportunity than with equal states of income and power, much less with equal weights in an arbitrary aggregate.

By virtue of their training, many economists tend to prefer the net national benefits approach of maximizing the sum. This derives from the view that equity judgments on the distribution of costs and benefits are beyond the scope of the profession or the assumption that government should, with the variety of controls at its disposal, rectify any unjust divisions of the economic pie. This Study rejects the first view on ethical grounds and its supplementary assumption for implicitly rejecting less coercive means of achieving equal economic opportunity.

Another attractive characteristic of the aggregate view is its apparent institutional simplicity. That is, if one adopts the net national benefits view, then there is no need to consider explicitly such political annoyances as individual citizens, interest groups, private firms, or state and local governments. The federal government (in all its pieces) is the sole entity which assumes responsibility for the aggregate. Accordingly, the national interest is within the province of the federal government. Presumably, one of the

two active branches, unless overridden by the judiciary or each other, would from time to time, promulgate declarations that specific actions were in the national interest; and presumably, the other levels of government and the remaining groups and individuals which make up the nation would accommodate these declarations in a spirit of cooperation and enlightened patriotism.

Since it is clear to anyone that this is plain nonsense, adherents of the net national benefits/aggregate approach are faced with the necessity of augmenting the authority of the federal government. The preferred means seem those of invoking federal preemption doctrine or the interstate commerce clause of the Constitution, as currently interpreted. While these principles can be applied wisely in certain areas (e.g., defense, foreign policy, elements of basic economic organization between the states), they cannot have been meant to apply to all functional areas. If so there would have been no reason for the federal system - the states and localities ought to have been established as mere administrative conveniences of the federal government. Evidently, this was not and is not the case at all and so some alternative concept of the national interest is required. In the next section, this Study advances a concept of the national interest similar to the so-called "process" definition and applies it to the problem of coastal facility siting in the final chapter of this summary.

C. The National Interest, Individual Citizens, and the Federal System.

The net national benefits view of the national interest takes the collective - the nation - as the fundamental, legitimate decision-making unit. In contrast, the federal system view of the national interest advanced in this Study takes the individual citizen as the fundamental, legitimate decision-making unit. Although the choice between these and whatever other alternatives that exist is largely a matter of political philosophy, some comments can be made to illuminate the choice.

It was noted above that groups, as homogeneous entities, do not think and make decisions. Only individuals are capable of such unique behavior. One consequence of this is that the legitimacy originally accorded the collective is by necessity transferred to its officials - and in pure form, without regard for their qualifications, the manner by which they achieved such status, or the manner in which they exercise their authorities. Collectivist political philosophy is, of course, the foundation of communism, socialism, and state-enterprise forms of government. These forms seem superior for bringing about equal political and economic states among the citizenry and inferior for maximizing the aggregate product and for preserving individual freedoms.

The individualistic approach to the national interest is based on the theory of the social contract, formulated and advanced by Locke, Hume, and Rousseau in the years just prior to the American Revolution. Of course, the contracts referred to are just abstractions. In recent times, no one has had the luxury of accepting or rejecting the entire structure of government as written in any contract. We are all operating under provisions of contracts endorsed formerly by our predecessors and made more recently as a result of our

abstentions. Those who reject the entire set of rules and procedures for public decision-making deny the government's legitimacy. Those who accept the bulk of the structure of government accord it some degree of legitimacy and are fortunate in having the option of seeking to modify those rules and procedures to which they object. Note that the idea of legitimacy follows naturally from social contract theory, which is in turn based on selecting the individual rather than the collective as the fundamental unit of society.

The idea of the social contract has two parts, which while closely connected, must be distinguished [2] . The best known part is the contract of government, the essence of which is well expressed in the Declaration of Independence:

> ... governments are instituted among men, deriving their just powers from the consent of the governed; ... it is the right of the people to alter or ... institute a new government, ... as to them shall seem most likely to effect their safety and happiness.

But on reflection it can be seen that the contract theory of government postulates, as a prior condition, the theory of a contract of society. There must already be an identifiable association - a potential citizenry who have tacitly agreed to negotiate among themselves regarding the scope and means for collective activity.

These two aspects of the social contract show the difference between the public interest and the national interest. The public interest is the interest of the association, without reference to the particular form of government or organization in power. (It is evidently quite an abstract concept, and is not considered further in this Study.) In contrast, the national interest is directly connected to the particular form of government selected by a society.

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[2] Social Contract: Essays by Locke, Hume, and Rousseau, With an Introduction by Sir Ernest Barker. (New York: Oxford University Press, 1977) p. xii.

Individualism and its emphasis on the contractual basis of government imply that the nation consists not only of the aggregate of its citizens, but also of its "constitution" - the entire set of implicit and explicit rules and procedures which specify public decision-making processes. The constitution of this nation thus comprises not only the Constitution proper but also the constitutions, charters, codes, statutes, regulations, and ordinances of the various levels of the federal system.

By explicitly considering a nation's constitution, it is possible to define the national interest unambiguously, and in a manner which is consistent both with individualism and with the notion of an individual's interest. The difficult questions of what is best for the group and what constitutes the group's knowledge of alternatives and their effects are answered by reference to the constitution. Admittedly, the concept of "best" loses its cherished aura of objectivity and there is no guarantee that the knowledge gathering processes of the whole are superior to those of its parts. Recognition of these potential failures of government decision-making leads one to examine closely the structure and performance of current and alternative systems of public decision-making.

One aspect of the current national decision process over the siting of facilities that is particularly conducive to the welfare of individual citizens is the spatially nested structure of the federal system. Neglecting intermediate partitions, the nation comprises states and states comprise localities - and each level has its own government. To the extent that the interests of neighbors' coincide (as they commonly do for energy facilities because of the spatial distribution of their effects), the assignment of veto power to the levels of the federal system is adequate to ensure that the majority does not trample the interests of the

minority. But conversely, an adequate national facility siting decision process must have the capability of meeting the interests of the majority. Despite the language, there is no contradiction here. The very structure of the federal system suggests the solution.

The siting of a facility is in the national interest if and only if its effects are, or are redistributed, such that each entity with effective veto power over its construction or operation finds the siting of the facility to be in its interest. If these entities are restricted to include only the developer and the nested levels of the federal system, then for facilities with net national benefits, it will usually (but not always) be possible to redistribute the surplus of the whole such that each part also gains some surplus. Note that if a facility does not have net national benefits, then it will generally be impossible to satisfy the preceding definition - the surplus of the whole being inadequate to compensate the deficits of the parts.

Suitable redistributions still can, but are much less likely to be found, when vetoes are granted to many agencies with narrow functional jurisdiction. Regardless of the assignment of vetoes, if suitable redistributions cannot be found, then the siting of the facility is not in the national interest, despite any expectations of net national benefits. In these cases where the citizens of the nation pay the price for inadequate public decision processes, attention should be focused on rectification rather than circumvention of the distribution of authorities.

A procedure for making this definition operational in the context of coastal management is discussed in the next and concluding chapter of this Summary.

III. INFORMED AND EQUITABLE RESOLUTION OF SITING CONTROVERSIES.

The first chapter of this Summary reviewed the problems and common structure of energy facility siting controversies, and commented briefly on the current role of coastal management in the sad war of energy versus the environment. The preceding chapter began with a somewhat formal discussion of the meaning of interest statements and related concepts and ended with a presentation and comparison of two opposing views of the national interest.

The concept of the national interest advanced in this Study is not new at all - indeed it is actually conservative in the sense of being consistent with the philosophy of the Declaration of Independence and the balance of power between levels and branches of the federal system as intended in the Constitution. The extraordinarily complex technical, economic, and environmental issues raised by the siting of energy facilities do not warrant the creation of radically new institutions such as energy czars, science courts, or the like.

But there are improvements to be made. Fortunately, these improvements can be made within the context of coastal management and the existing permit system..

A. Options for Conflict Resolution.

The interests of the nation are not in conflict; rather the process of determining the national interest requires resolution of the conflicting interests of the nation's many distinct factions. The central question becomes "How can the intensity of conflict between players of the energy game be reduced?"

There are two general ways of accomplishing this goal. One is by changing the basic structure of interaction - i.e., the nature of authorities assigned or granted each player. The other is by facilitating a convergence of the interests of factions.

This Study argues that according vetoes to the developer and the levels and branches of the federal system is not only politically sacred, but is also theoretically correct. However, support for this basic structure does not imply approval of the increasingly prevalent practice of granting veto power to myriads of agencies with narrow functional jurisdictions - a practice which all but precludes rational decision-making. The capability to make trade-offs is absolutely essential. (After all, who would turn down a Porsche priced like a Pinto because it had bald tires?)

The greatest potential for reducing the intensity of conflict lies in facilitating a convergence of factional interests. There are several common generic techniques available:

One set of procedures is characterized by external intervention. To the extent that permit authority lies properly with executive and independent regulatory agencies, the resolution of specific controversies by legislatures and judiciaries constitutes external intervention. The judiciary has an essential role in ensuring the legitimacy of executive procedures, but oversteps its authorities the more intensely

it becomes involved in the substance of siting controversies. The substantive role of legislatures is more easily challenged. The principal duties of these bodies are those of establishing, monitoring, and modifying executive and regulatory objectives and procedures for making substantive decisions. If legislatures choose to retain and exercise the authority to make specific siting decisions also, then there is no need for procedure and indeed no need for many executive and regulatory agencies. The short run gains from "fire-fighting" must be balanced against the resulting damage to the balance between branches.

Resolution by external intervention is effective only if the outside party is recognized by all principals as unbiased and fair. There are few if any candidates for such status in the energy game because of the scope and significance of the underlying issues. But resolution by external intervention has another more serious intrinsic flaw. That is, despite unanimous acceptance of such procedures as just and fair in the long run, the short run result of an adverse decision is often that the focus of the underlying state of conflict merely shifts to a new decision.

A true relaxation of the state of conflict seems more likely to occur when resolution is accomplished by the principals. This class of techniques comprises combat, chance, contests, bargaining, and voting.

Although voting appears initially attractive, it would be quite costly if done for every facility by the entire citizenry. The avoidance of such costs is the primary justification for representative government. Voting by the principals would imply a reduction in their power and so, apart from being politically unacceptable, would threaten the valid assignment of veto power to the developer and levels of the federal system. Resolution by chance and combat have rather obvious disadvantages.

So we are left with contests and bargaining, which fortunately have great potential for reducing the intensity of siting conflicts. While bargaining is an accepted political skill, the association of contests with the resolution of siting conflicts is perhaps more novel. The type of contest envisioned by this Study is one of analysis and presentation, judged by public opinion. The objective is to specify with greatest economy and accuracy the nature and distribution of the effects of siting alternatives for the purpose of determining and defending one's interests.

B. Cooperative Analysis, Bargaining, and Adequate Consideration of the National Interest.

The intent of the national interest provision of the Coastal Zone Management Act is to encourage states to develop management programs capable of accommodating the siting of facilities with net national benefits. Toward this end, approvable programs must "provide for adequate consideration of the national interest" in such facilities. This wording has been a major source of confusion for virtually all players of the energy game. As a result, the provision has been variously interpreted to be completely meaningless, to be a directive calling for the study of federal documents, and to be a foothold for a future federal incursions into state authority over facility siting. Of course, none of these interpretations is particularly conducive to realizing the original intent of the provision.

This Study argues that the unfortunate wording of the provision derives from an incorrect interpretation of the concept of the national interest which in turn is due to a lack of appreciation for the safeguards built into the federal system. We conclude that "adequate consideration" should not require a state to make siting decisions on any basis other than the state's own interest. There are three general characteristics of a suitable process for adequate consideration, which if thoughtfully implemented will lead to the siting of facilities with net national benefits.

First, a state's program must have the capability to consider adequately its own interests. Institutions and procedures must exist which ensure that coastal resource allocation decisions are made according to the true costs and benefits to the state. This means that there must be a capability of determining the effects of alternative proposals for utilizing coastal resources and an ability to

make trade-offs and otherwise value these effects in order to determine which alternative is best - is in the state's interest.

Second, a state's program must not only allow, but must also encourage bargaining. This means that the program should not contain prohibitions or inflexible policies that would impede bargaining. The program should have the capability of analyzing, receiving, and introducing modified proposals (conditions, stipulations, in kind or monetary compensation plans, log-rolling). The capability to be flexible and to bargain over redistributions of facility effects should be an integral part of the states' energy facility planning process, as called for in section 305(b)(8) of the CZMA.

Third, the analytic and bargaining staff of a states' management program should be explicitly connected to similar staff at the federal level (for national interest purposes) and where possible at the local level (for regional interest purposes). These connections are intended to establish the state's capability to absorb information regarding the national and local effects of alternative proposals. A network of this sort enables the state to act as a focus for bargaining over suitable redistributions.

An example of a national facility siting process embodying these characteristics is presented in the last chapter of the following part, entitled "Policy Analysis." The example is presented for the purpose of specificity and not as a recommendation per se. It is recognized that each state would necessarily implement these characteristics in accordance with the unique structure of its government.

These things having been said, there are decreasing returns to further specificity on the part of this Study. Naturally, we hope that the leaders of factions in the war

of energy versus the environment, will separately and jointly consider the thrust of these reports. If there is some common positive response, the focus of remedial action will shift naturally to the federal Office of Coastal Zone Management and appropriate Congressional committees. The citizens of the nation await the signing of a treaty.

Part two.
Policy analysis.

Richard N. Langlois.
Jeffrey D. Roughgarden.

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CHAPTER I. INTRODUCTION AND SUMMARY.

The federal Coastal Zone Management Act of 1972 (CZMA), as amended, provides federal funding and other assistance to encourage coastal states to develop comprehensive programs to manage their coastal resources. An important motivation for this Study is a controversial provision of the CZMA. That passage, section 306(c)(8), requires that each state management program

> ... provide for adequate consideration of the national interest involved in planning for, and in the siting of, facilities (including energy facilities in, or which significantly affect, such state's coastal zone) which are necessary to meet requirements which are other than local in nature.

The Office of Coastal Zone Management (OCZM), as the federal agency charged with administering the CZMA, has the responsibility of giving meaning to the phrases in this passage. Specifically, OCZM must be able to answer questions of the following sort.

- What is "the national interest?" How is it defined? How measured or ascertained?
- What constitutes "adequate consideration" of the national interest? How does a state management program "provide for" adequate consideration?

In an effort to answer these questions, this essay develops an approach to understanding an energy facility siting controversy in terms of the interactions among the relevant actors involved in the siting decision.

Chapter II presents the concept of Pareto optimality as a criterion for a "good" outcome of a siting decision. The criterion is this: a reallocation of resources (like the siting of a facility) should make all the parties involved as well off as possible without making any worse off than before the reallocation.

One way to accomplish outcomes of this sort in energy facility siting decisions is through a system of bargaining, in which each party -- state, federal government, industry -- can, by acting in its own self-interest, help bring about an outcome that is everyone's interest. A major facet of a bargaining process is the ability of the parties to make side-payments -- to be able somehow to transfer benefits from those who stand to gain from the siting of the facility to those who stand to lose. One natural method of effecting such transfers in the context of coastal management is by structural or in-kind transfers effected via permit conditions. Examples of such transfers might include pollution control requirements, the compensatory acquisition of land, air pollution tradeoff schemes, etc.

With this background, Chapter III of the report turns to some of the important policy issues surrounding coastal energy facility siting.

Principal among these issues is the question of "adequate consideration." It is natural, in light of the analysis in this volume, to associate the ability of a management program to provide for adequate consideration of the national interest with the ability of the program to help effect siting decisions that are Pareto optimal.

Specifically, the provision for adequate consideration of the national interest in a state program should involve the following characteristics.

(1) The program should adequately consider the state's own interest. That is, the program should perceive the true costs and benefits to the people of the state of alternative resource uses and make allocative decisions accordingly.
(2) The program should be geared to permit and encourage bargaining. This would involve:
    - a decision-making process that is explicitly able to interact with industry

and the federal permitting agencies and that has the flexibility to consider and propose alternative siting options;

- explicit statements of mitigation measures (sidepayment possibilities) that are acceptable under the management program;
- no arbitrary exclusions of potential facility uses, and,
- no inflexible policies or prohibitions that would seriously impede bargaining over modifications to a facility siting proposal.

(3) The program should demonstrate a capability to analyze the effects of siting options, and should be required to disclose the results of such analysis. The program should also be able to "consider," i.e., to perceive and understand, the national costs and benefits of the siting options.

Chapter III also makes the following observations about other aspects of coastal management.

- The California API vs. Knecht suit. A "legally enforceable commitment" to consider the national energy objectives, if interpreted to mean that the program should make decisions on the basis of the national concern for energy at the expense of the national concern for other effects, or at the expense of the state interest, has no economic rationale.
- Predictability. Uncertainty over the reaction of coastal management agencies to siting proposals represents a real cost to the nation. But the desire for predictability should not lure policy-makers into the trap of substantive rigidity. Rigidity of this sort may lead to even greater costs of

resource misallocation. Predictability is best obtained by establishing a management process which, while not guaranteeing certain benefits to any party, does promise each party immunity from uncompensated damages.

- Reactive vs. Active Regulation. Integration and creative use of the traditional permit process are better means of attaining national environmental and economic objectives than the establishment of active, entrepreurial public planning agencies. However, cooperative energy policy formulation has value for providing guidance to developers, and for clarifying and rationalizing local, state, and national objectives.
- Uses of regional benefit. The analysis of the national interest developed in this report is almost directly applicable by analogy to the uses of regional benefit issues. The focus is shifted, however, from the interaction of the nation and the states that compose it to the interaction of the state and its political subdivisions. There is no economic reason to require a local community to accept a facility of benefit to the state or region if that facility will entail net costs to the community.
- Federal consistency. The federal consistency provisions as now written and interpreted are seen more as an effort to redistribute power between state and federal governments than as a mechanism to reduce conflict; indeed, these provisions have increased conflict over energy facility siting. The mediation provisions of section 307 could be redirected to facilitate case-by-case bargaining (and thus conflict

resolution) on energy facility siting controversies.

- Impact assistance. The Coastal Energy Impact Program -- and government grant programs in general -- are not as effective or desirable a means of making strategic transfers of compensation in energy facility siting situations as are those means of transfer that arise out of case-by-case bargaining. The planning grant elements of the CEIP, though, can be a useful federal means of encouraging and improving bargaining.

Finally, Chapter IV presents a rather explicit example of a decision process for facility siting which embodies the desirable characteristics discussed in the preceding chapters. This process involves identifying a network of officials at every level of government for the purpose of undertaking cooperative impact analysis and negotiations regarding redistribution of effects. Such a process could also provide a mechanism to facilitate cooperative domestic policy formulation within the federal system. Chapter IV also makes some observations about the politics of process recommendations.

CHAPTER II. THE SOURCES OF CONFLICT: A MULTI-PARTY ANALYSIS.

A. Background.

The history of the national coastal management program begins, by most accounts, with the 1969 Stratton Commission report, Our Nation and the Sea. In outlining a national policy for the oceans, this report identifies the coastal zone as, "in many respects, the Nation's most valuable geographic feature" [1].

The report goes on to recognize the multilevel concern -- local, state, and national -- over the use of coastal resources and the conflict inherent in deciding among alternative resource uses. The Commission's recommendation:

> The key to more effective use of our coastal land is the introduction of a management system permitting conscious and informed choices among development alternatives, providing for proper planning, and encouraging recognition of, the long-term importance of maintaining the quality of this productive region in order to ensure both its enjoyment and the sound utilization of its resources. The benefits and the problems of achieving rational management are apparent. The present Federal, State, and local machinery is inadequate. Something must be done [2].

Something was done. In 1972, Congress passed the Coastal Zone Management Act (CZMA) -- legislation that accorded almost perfectly with the Stratton Commission's vision of coastal management. The central element of the CZMA is a system of grants-in-aid to help finance state efforts at developing coastal management programs.

> ... the Commission finds that the States must be the focus for responsibility and action in the coastal zone. The State is the central link joining the many participants ... An agency of the State is needed with

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[1] U.S. Commission on Marine Science, Engineering, and Resources, Our Nation and the Sea, Washington, D.C., U.S. Government Printing Office, January 1969, p. 49.

[2] Ibid.

> sufficient planning and regulatory authority to manage the coastal areas effectively and to resolve problems of competing uses [3].

The CZMA creates the basic structure of coastal management; but within the CZMA's framework lie many unshaded areas. Indeed, Congress in 1972 cast the main pieces of the coastal management puzzle, leaving federal and state officials with the task of assembling the pattern and constructing the missing elements.

Principal among the problems of interpretation has been the question of the "national interest" in the use of coastal resources. The Stratton Commission acknowledged that "[t]he uses of valuable coastal areas generate issues of intense State and local interest, but the effectiveness with which the resources of the coastal zone are used and protected often is a matter of national importance," and concluded that "... the Federal Government must assure the protection of national interests in the coastal zone" [4].

The consistent emphasis on the state as a focal point for coastal management leads to a concern as to whether distinct and individual state programs will add up to a sound national program.

The CZMA responds to the "national interest" concern in Section 306(c)(8), which requires that a state program

> ... provide for adequate consideration of the national interest involved in planning for, and in the siting of, facilities (including energy facilities in, or which significantly affect, such state's coastal zone) which are necessary to meet requirements which are other than local in nature.

The Office of Coastal Zone Management (OCZM), as the federal agency charged with administering the CZMA, has the responsibility of giving meaning to the phrases in this passage. Specifically, OCZM must be able to answer questions of the following sort.

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[3] Op. cit., p. 56.

[4] Op. cit., pp. 49 and 57.

- What is "the national interest"? How is it defined? How measured or ascertained?
- When is the siting of a facility "in the national interest"?
- What constitutes "adequate consideration" of the national interest? How does a state management program "provide for" adequate consideration?

One of the most frequent contexts in which these questions are raised is that of energy facility siting. As energy gained a more prominent place in the public mind after the 1973/74 "energy crisis," Congress responded by adding, in its 1976 amendments to the CZMA, a number of new provisions with an energy orientation. These include

- addition of the parenthetical element "including energy facilities in ..." within the section 306 (c)(8) passage cited above;
- a new requirement in section 305(b)(8) that a state program contain a process to plan for and manage the impacts of energy facilities in the coastal zone; and
- a new program -- the Coastal Energy Impact Program (CEIP) -- to provide funds to state and local governments in a manner related to coastal energy activity.

The energy-related provisions are new pieces of the puzzle. But, in many ways, the conflicting concerns surrounding the use of coastal resources for the siting of energy facilities [5] are the same sorts of concerns inherent in any use of coastal resources -- though writ somewhat larger, perhaps. Analyzing energy facility siting and its relationship to coastal manage-

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[5] This study will tend to use the expression "energy facility siting" in an inclusive fashion to mean any sort of energy activity affecting the coast, including outer Continental Shelf development.

ment, then, can help illuminate the pattern to much of the national program of coastal management.

In order to understand the problems of energy facility siting and to recommend improvements in the way such facilities are sited, this Study focuses on the conflicts that inhere in siting decisions -- particularly in conflicts among local, state, and national levels of concern.

Volume 2 of this Study examines the impacts of facility siting, and presents an approach to evaluating these impacts and identifying how they will likely affect each participant -- each level of government or interest group -- in the siting process.

This essay and the more general treatment in Volume 3 deal with the dynamics of conflict and choice that arise from the differential incidence of these impacts on actors in the siting drama.

B. Interests.

Volume 3 of this Study -- devoted to a conceptual analysis of the siting decision and the notion of interests -- and volume 2 of this Study -- which examines the impact of energy facility siting both analytically and through case studies -- make the following observations pertinent to understanding the dynamics of siting controversies.

- An energy facility siting controversy can best be viewed from the perspective of a decision among a number of siting options (which may include the status quo).
- The appropriate way to decide among such options is on the basis of the effects -- the impacts -- of each option.
- The effects of a siting option will be felt differently by the various groups at interest in the controversy, and, in particular, by the various regions -- nation, state, locality -- involved.

Each region or group likely to feel a significant effect from an energy facility siting decision can reasonably be expected to be concerned about that decision. Each is/has an "interest" or concern. In fact, it will be both reasonable and convenient to associate the notion of "the national interest" with the effects (and associated values) felt by the nation as a whole. Similarly, the "state interest" would be related to the effects (and attendant values) felt by the state, and the "local interest" would reflect the effects (and values) felt at that geographic level.

Whereas there is some hope of predicting and measuring the physical or economic effects of an energy facility in something approaching an objective manner, the values assigned by the various parties to these effects -- i.e., the rates at which each party would be willing to trade a unit of one

effect for a unit of another -- are inherently subjective and difficult, at best, to infer and quantify. But suppose, for a moment, that these values were readily available. What, then, could one say about the proper resolution of the energy facility siting controversy?

C. On Gainers and Losers.

Consider a hypothetical impartial decision-maker granted jurisdiction over the entire nation -- a philosopher-king, perhaps. This decision-maker has before him a set of options for the siting of an energy facility, along with a set of national and sub-national effects for each option. He also has a set of values to attach to these effects, values that are in some sense "national" with regard to the national effects and "local" with regard to the local effects. The options he faces range from not siting the facility, which might, for example, leave the local area better off but the country as a whole worse off, to siting the facility in the least-cost form suggested by industry, which might, say, leave the locality worse off but make the nation better off; and there are a number of intermediate options.

How, then, does our decision-maker choose the "overall" best option? The best option from a national point of view is the one that gives the highest national values; the best option from the local point of view is the one with the highest local values. But is there an option that is in some sense "best" for everybody?

When faced with this question, analysts normally invoke the notion of Pareto optimality. Put simply, a Pareto optimal decision is one that leaves society as a whole -- the locality as well as the nation -- as well off as possible without making either worse off.

As an example, consider two people sitting across a table from one another. If a third person puts a stack of dollar bills on the table, leaving the two to scramble for the money, any allocation between them is Pareto optimal if they don't leave any dollars sitting on the table. Even if one of them gets all the money, society -- the two of them -- is as well of as possible without either being worse off than before the dollars appeared.

In this sense, then, if our decision-maker can find a siting option whose effects have the highest total value without implying negative values to any group, he can reasonably believe he has found one of the best options. (If one such option can be found, then in general others can also be discovered.)

Unfortunately, it is in the nature of production that one has to give up something in order to get something. Suppose each of our two friends at the table has a stack of bills. If one comes up with a money-making scheme that makes $4 for him but costs his colleague $2, the scheme is not Pareto optimal, even though it increases the net worth of their little society. Energy facility siting usually presents just this sort of situation. If the choice is restricted to siting the facility as proposed or scuttling it entirely, then it is often the case that some group will be worse off with either option. Hence, neither option is Pareto optimal [6].

If the net value to society of a given option is positive, however, the gainers can, in some cases, compensate the losers to create a Pareto optimal situation. In the example above, if the entrepreneur repays his colleague any amount between two and four dollars, then the resulting situation is Pareto optimal. This is called the compensation principle [7].

In an energy facility siting situation, of course, this sort of compensation is never easy and, indeed, not always possible. The main difficulty is in creating the proper institutional arrangement to effect the compensation in the

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[6] If one thinks of an energy facility as an attempt to forestall shortages or price increases rather than to increase supply or reduce prices, then not siting a proposed facility leaves a good many people less well off.

[7] The compensation principle is associated with the names of J.R. Hicks and N. Kaldor. An excellent reference for this and other concepts in welfare economics is James Quirk and Rubin Saposnik, Introduction to General Equilibrium Theory and Welfare Economics, New York, 1968.

face of inevitable disagreement over the proper amount (or even the proper recipients) of the compensation. There are three primary ways the gainers could compensate the losers:

- grants,
- "logrolling", and
- internalization.

In a sense, these schemes are all ways to create new options for the decision-maker. For example, old option A plus an intergovernmental grant yields new option B, an option that, presumably, is closer to something resembling a Pareto optimal situation. The generation of options is more in the nature of an art than a science (as those terms are colloquially understood), but it is possible to say a little about the circumstances under which these compensation schemes are appropriate. For example, one would expect frequently to be concerned with options that generate positive national value at the expense of local costs. This creates a typical situation in which the nation as a whole might want to compensate states or localities [8].

In the case of compensation by grant, the federal government, representing the nation as a whole, might provide grants to those localities affected by the siting of an energy facility expected to produce net national benefits. Since those who pay federal taxes are roughly the same people that feel the national benefits of the facility and those who pay local taxes are roughly the group who feel the local effects, this is not an entirely unreasonable arrangement.

This scheme implies that a federal agency will have somehow to calculate the appropriate amounts to give each local

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[8] The situation in which a locality might wish to pay off, if not the nation, at least the energy industry to site a facility in that locality is not a rare one, as the recent scramble among Providence, New York, and other cities to become support bases for Atlantic OCS activity demonstrates.

community, county, or state. This means, in effect, that the agency has to determine the "local effects" of the chosen siting option, attach values to those effects, and sum the values. If the total value of the localized effects is negative -- if the chosen option results in local costs -- the agency would write a check for the amount of those costs, provided, of course, that the amount is less than the net national benefits.

The fundamental problem with this scheme is that the various localities have not conferred philosopher-king status to any federal agency, particularly regarding the siting of facilities. This implies that the administrative difficulties associated with such a scheme would be all but insurmountable.

The most obvious problem is that no single set of values is accepted by all localities. Consequently, if a single set were promulgated, some localities would still object to sitings made on such a basis, and others would be relatively over-compensated, resulting in inefficient resource allocation.

The second problem is also intrinsic to the scheme and derives from the fact that the amount of compensation is determined directly from the analysis. As a consequence, there is a strong incentive to quibble over alternative techniques for determining the nature and distribution of facility-induced effects. As noted above, these matters are relatively objective and should not be the focus of political controversy. Nevertheless, argument over analysis techniques is inevitable if a single set of values is to be applied to groups holding disparate values.

This idea of calculating and compensating the loss to a state or locality attendant on the siting of an energy facility was embodied in the "net adverse impact" grants proposed during the 94th Congress as part of the original Senate version of S.586, the Coastal Zone Management Act Amendments [9]. Happily for federal administrators, these

[9] Legislative History of the Coastal Zone Management Act, U.S. Senate Committee on Commerce and National Ocean Policy Study, December, 1976, p. 750.

grants did not become part of the final version of the Amendments that was signed into law on July 26, 1976, and became PL 94-370[10]. Section 308 of the amended CZMA creates the Coastal Energy Impact Program (CEIP), which contains, instead of net adverse impact grants, a program of planning grants, environmental grants, and loans to help prevent, reduce, and (in the end) compensate for adverse local effects of coastal energy activity.

The planning grants, one can argue, help prevent adverse effects through better planning. The loans were intended to help localities finance new public infrastructure early in order to minimize the socioeconomic effects of facility construction. The formula grants, allotted in part on the basis of historic (last year's) production of oil and gas from the OCS adjacent each coastal state, have a clearly more compensatory flavor. Since parameters of the formula include the amount of oil and gas landed in each state and the number of persons newly employed in OCS activity in each state, the grants provide, in principle, an incentive for states to permit or encourage the location of OCS support facilities within the state.

In a sense, a grant program of this sort is an institutionalized special case of what is frequently called "logrolling." Stripped of its pejorative connotation, logrolling simply means in-kind compensation effected in a quid pro quo spirit. For example, a government agency or agencies charged with reviewing and approving various kinds of public and private projects might act (presumably informally) as a project broker of sorts, cutting deals in which a state or locality would agree to accept an energy facility with the understanding that a compensating positive-benefit project or program would soon be coming its way. Of course, it is actually rather difficult for an Executive Branch agency, operating, as it does, within rather restricted bounds, to play this kind of game; but deals of this sort are a routine part of Congressional life.

[10] Ibid, p. 581.

What is the role of the energy companies in all this? Some economics is necessary [11].

Consider a competitive market for energy of some type (competitive in the sense that there are no government price controls -- an unrealistic but useful assumption). One can think of the industry supply curve as made up of a set of energy facilities ordered according to increasing per-Btu cost.

(An industry supply curve shows the incremental or marginal cost or producing additional amounts of the industry's product.) This is shown in Figure 1. The i^{th} facility produces an amount Δq Btus at a cost p_i (per Btu).

Figure 2 shows two industry supply or marginal cost curves constructed in this way. The lower one is the actual one the the industry faces -- the costs here being the normal market-valued costs associated with production. The upper one is a curve constructed by adding to each cost p_i someone's valuation of the external costs imposed by facility i. External costs and benefits represent the value of effects not priced by the market yet still associated with production (e.g. pollution, security benefits). If that someone is the philosopher-king whose values are accepted by everyone, then this upper curve would be called the "true" marginal cost curve, since it reflects the total per-unit cost to society.

Because of the potential for profit, the industry will keep building energy facilities until the per-Btu cost of building the next one exceeds the per-Btu price the market will bear, i.e., until the perceived (lower) supply curve intersects the demand curve. Consumers pay the market-clearing price p, and the industry produces an amount q. But in terms of "true" marginal cost to society, the amount q really costs a higher amount p'. Indeed, since an optimum

[11] The economic concepts behind the discussion in these paragraphs are explained in the Impact Analysis part of Volume 2 of this Study. One can easily skin through these paragraphs without losing touch with the main arguments.

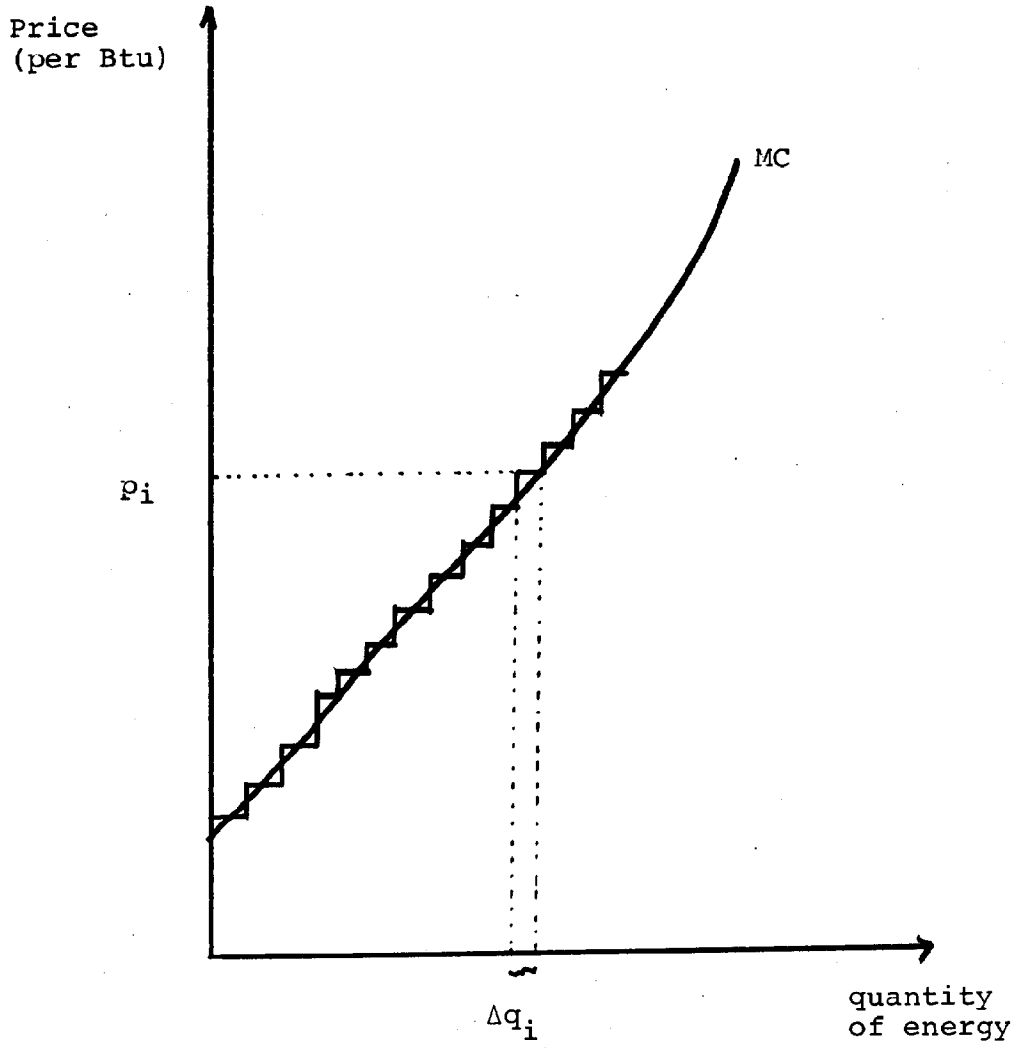

Figure 1: Constructing an Energy Industry Supply Curve Out of Energy Facilities

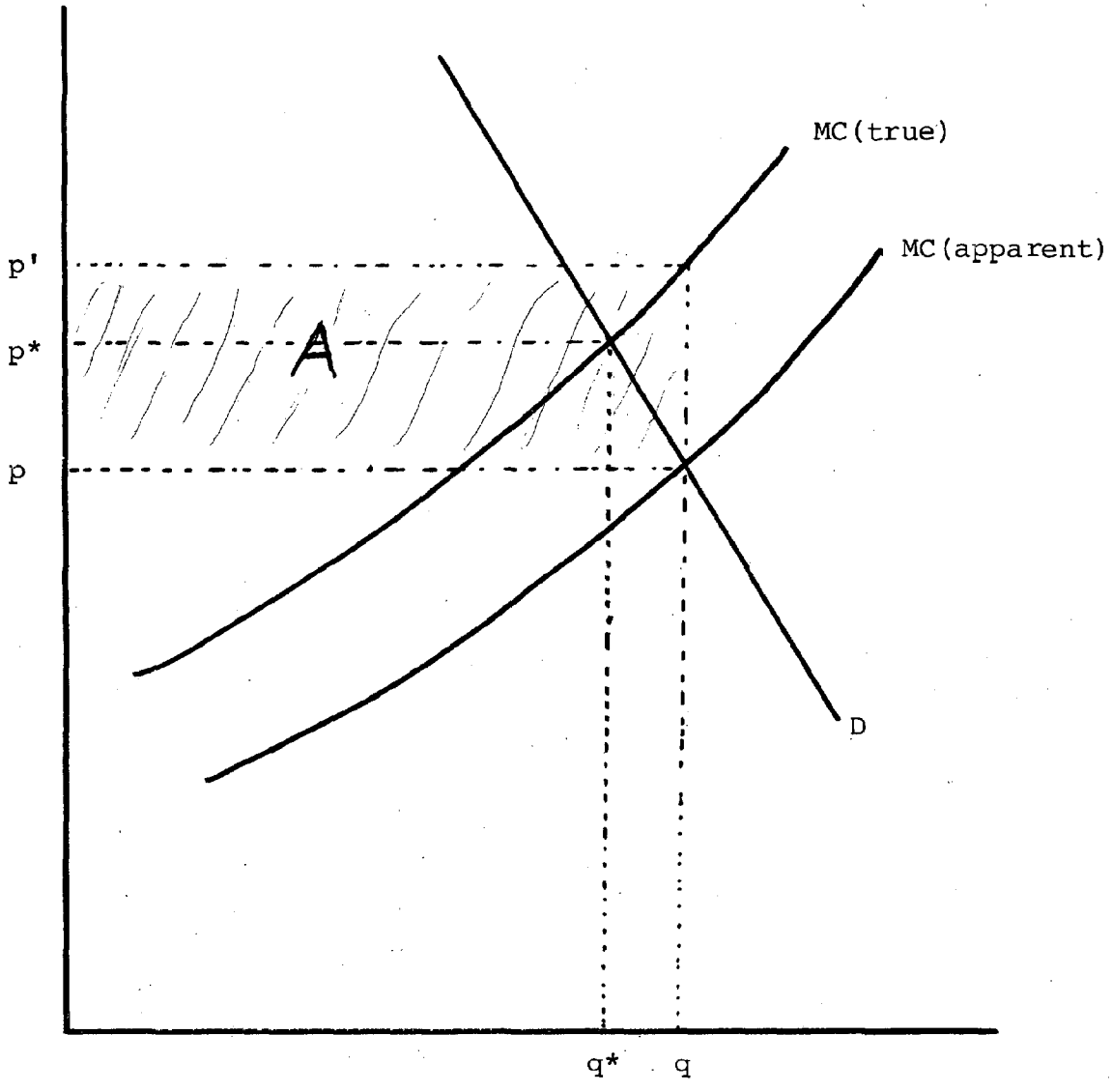

Figure 2

True and Apparent Marginal Costs

(in terms of economic efficiency) is gotten by equating price and true marginal cost, the industry should be producing the amount q* and charging p* for it. From an economic efficiency point of view, the industry is overproducing energy (and energy facilities) by an amount (q-q*).

If these external effects are primarily local effects, and if the country wants to compensate the locals the exact amount they bear in net external costs, the country would transfer the amount (p'-p)q, equal to the shaded area A. But this direct transfer would not be economically efficient, since the industry would still be producing at the point (p,q) instead of the optimal (p*, q*).

There is, however, a way to make the country as a whole better off without making the locals worse off than they would be with the direct transfer described above. If the industry were forced to perceive the true social cost of building energy facilities -- if the external costs were internalized -- the market would be at the social optimum.

The most straightforward form of internalization would be to require the industry, not the nation (i.e., the federal government), to compensate the locals for their costs. This would make the external costs a part of the cost function the industry perceives, pushing them to produce at the optimum [12].

From the point of view of our hypothetical decision-maker, internalization is often a matter of structuring the alternatives by, for instance, adding permit conditions that require cleanup of pollution, compensation for amenities destroyed, etc. Other methods of internalization, particularly in the case of chronic pollution, include the levying of optimal marginal taxes to raise the perceived cost curve to the "true" level [13].

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[12] Notice in this context that overcompensation of the locals is not Pareto optimal, since that would pull the industry off the true marginal cost curve as surely as would uninternalized externalities.

[13] See, for example, Baumol, W. and W. Oates, The Theory of Environmental Policy, Prentice Hall, 1975, Chapter 12.

As Figure 3 indicates, internalization is implicitly a transfer from the gainers to the losers (of an amount $(p^*-p)q^*$, the shaded area B). In this case, though, the nation makes the transfer entirely through the industry, which is now charging a higher price than it would have without internalization. If the industry is even mildly competitive, these extra costs of production will be shared by the producer and the consumers, who are directly and indirectly responsible for the external costs.

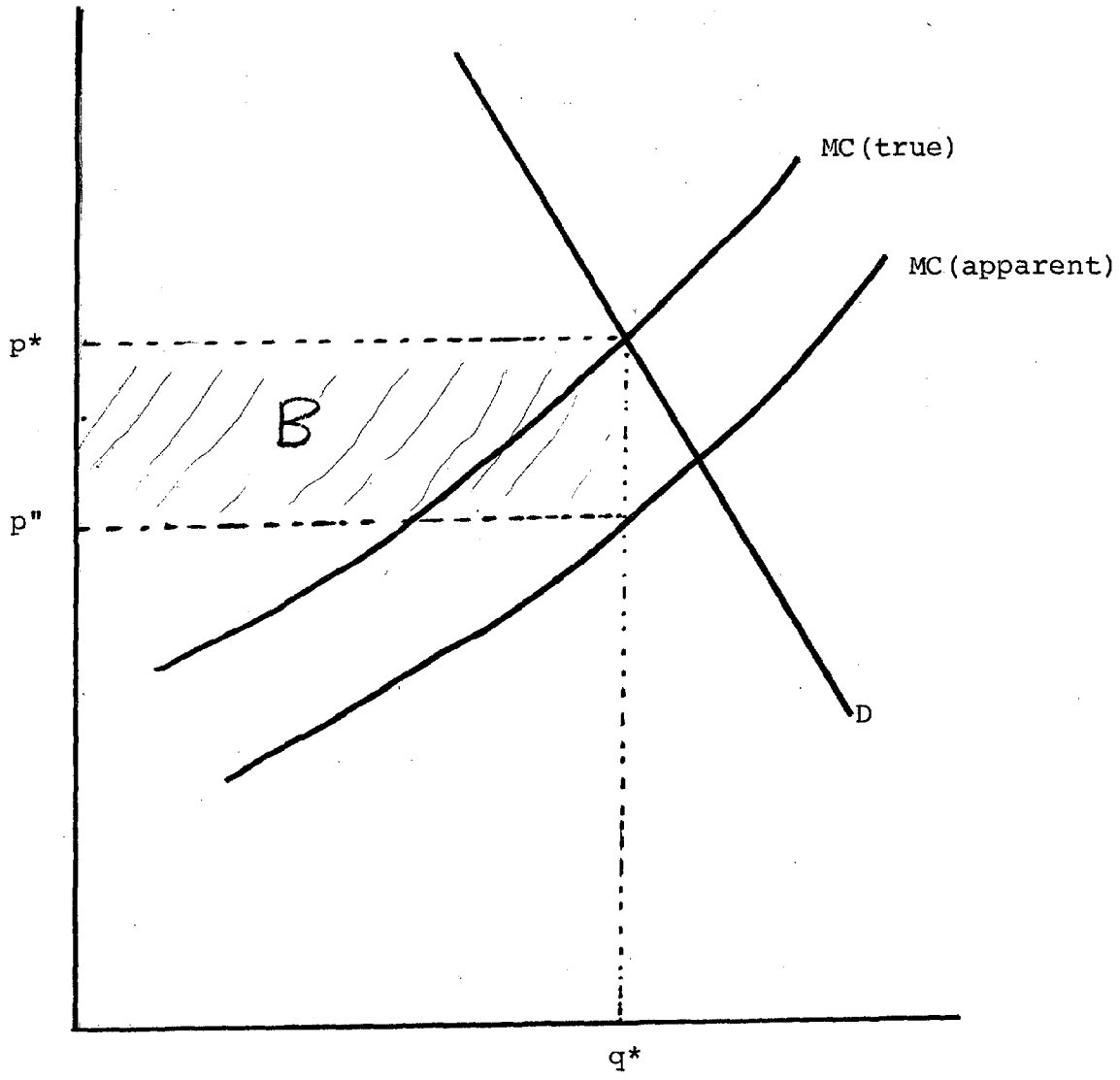

Figure 3: Internalization As A Transfer From Gainers To Losers

D. Bargaining and Energy Facility Siting.

The siting of an energy facility is, of course, seldom this simple. Perhaps the dominant characteristic of an energy facility siting controversy is that there is no single decision-maker; rather, there are a multiplicity of agents, including industry, federal agencies, state government, local government, environmental groups, etc., who have some control over the siting decision. The industry (i.e., the developer proposing the facility) and the governmental agents have various degrees of direct control over the decision, while environmentalists and other interest groups can influence the decision through their ability to lobby and to litigate. The fundamental characteristic of this strategic situation is that the approval or acquiescence of every principal party is needed to site a facility, and that the objection of any is sufficient to deny the siting proposal. These objections can be direct, as in the case of a refused permit or the withdrawal of a proposal in response to unfavorable permit conditions; or they may be indirect, as when interest groups are successful in obtaining legislative or judicial intervention.

One should ask whether, under such circumstances, the interaction of these agents will lead to decisions that are in some sense "good" decisions and that are "in the national interest."

Fundamentally, there are only two approaches one would take to ensuring that facilities of net national benefit are sited as a result of this interaction.

(1) Create a system wherein the federal government, as the agent of the nation as a whole, exercises authority by law or regulation to enforce implementation of nationally beneficial options which states or localities, acting in their own interests, might otherwise veto.

(2) Encourage a bargaining process that facilitates interaction between the principals directed

toward discovering modifications of the original proposal which are in each and every party's parochial self-interest, i.e., Pareto-optimal modifications.

The former approach implies, in most formulations, that the acceptance of a nationally beneficial siting option by state and local governments would be at the expense of state or local interests since net state or local costs would go uncompensated. While this approach isn't economically efficient (because external costs are not internalized), it may have some small advantage in terms of administrative costs. Furthermore, if one is concerned primarily with regional equity and only to a lesser extent with efficiency, then a uniform application of this approach could be attractive if the costs (of both inefficiency and coercion) ultimately balance out among regions. For example, New England might benefit from OCS development adversely affecting California while California simultaneously benefits from some new energy complex adversely affecting the East Coast.

The Interstate Commerce clause of the Constitution has occasionally and imprudently been interpreted in a way that has precisely this effect of supporting nationally beneficial activities at the expense of local costs [14]. (The economic justification of the Interstate Commerce Clause is that it forces the integration of states' economies, precluding the same sort of inefficiencies as arise in foreign trade when tariffs and quotas are imposed.)

But when the object of controversy is a large energy facility with potentially large payoffs at stake, there is a

[14] The relevant example in the present context is the recent Supreme Court decision striking down the State on Washington's ban on tanker traffic in Puget Sound. See the Northwest oil transportation case study in Volume 2 of The CTARP Energy Facility Siting Study.

more elegant, effective, and appropriate way of resolving the conflict: namely a process of bargaining. Properly implemented, such a process would improve economic efficiency, aid in the resolution of regional inequities, and be less costly to administer than the current decision process.

What constitutes a bargaining process? In the abstract, such a process should contain, in addition to the requirement that no party have complete control over the other agents, the following elements [15].

- A legal system.
- A communication system.

A "legal system" in this sense means a set of rules by which the bargaining takes place. It may include such parameters as:

- a definition of the powers of each party,
- formal methods of sidepayments, and
- possibilities for mediation or appeal to a third party.

A communication system (which might be thought of as part of the legal system) in the context of an energy facility siting controversy might include:

- an advance-notice mechanism to keep each party informed of the other's proposals, and
- agreed-upon impact analysis methodologies and fact-finding procedures to establish points of objective fact and to outline areas of agreement and disagreement over subjective matters.

What might bargaining look like in the context of energy facility siting? And how might such a process yield decisions that are Pareto optimal? A simplified example will illustrate. The first step in the transition from single decision-maker to many decision-makers is the two-party decision.

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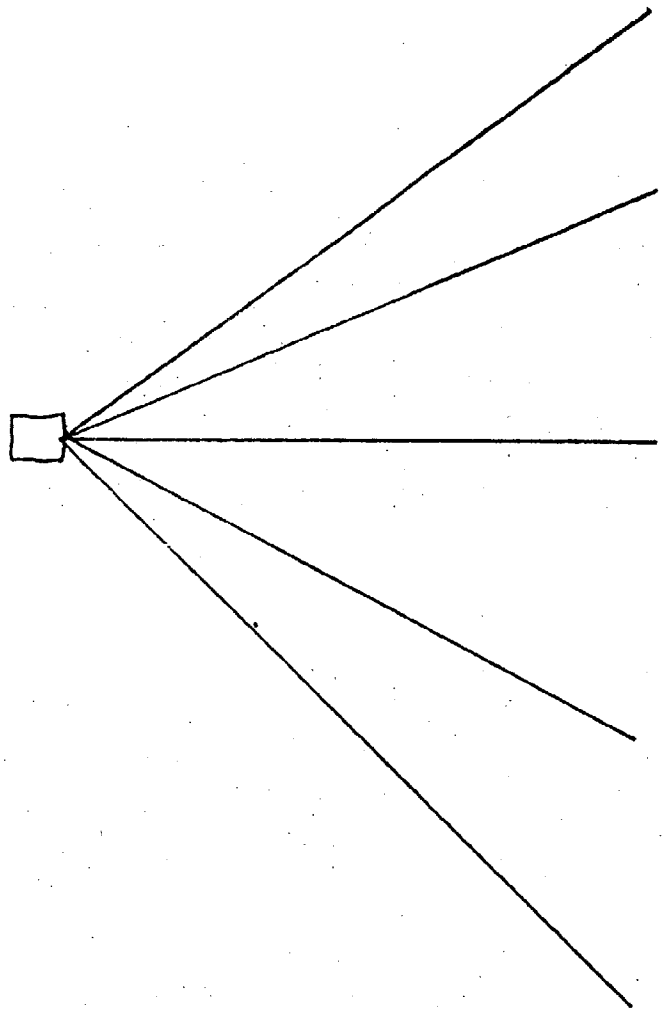
[5] Some of these ideas can be found in Thomas C. Schelling, The Strategy of Conflict, Oxford University Press, 1963, pp. 12-14.

Energy facility siting is generally an explicitly local issue; it's at that level that most of the external effects of siting are felt, and the local level is therefore the natural level at which to focus. But, because coastal management and coastal management programs are so clearly aimed at the state level -- a state program for managing state resources -- and must integrate the concerns of local government, controversies over facilities with net national benefits take on a state-versus-nation flavor.

To simplify, consider one holistic entity (call it "the nation") which feels the effects of an energy facility siting decision aggregated across the nation and another integrated entity (call it "the state") which bears the state and local consequences of that decision. These two entities have jointly to choose among the options presented by a siting decision. The situation they face is depicted in Figure 4. The decision is among options A through E. The nation finds that it can ascribe to the potential outcomes the values A_n through E_n; the state assigns the values A_s through E_s to these same outcomes; and the two sets of values are well defined and fully comparable. Option A might represent the siting of an energy facility in the location and manner that would result in the lowest-cost energy. Option B might be to site the facility in a different location or subject to certain conditions. Options C and D might involve the imposition of increasingly more stringent conditions. And option E might be the status quo, the option not to site the facility on the coast of this state.

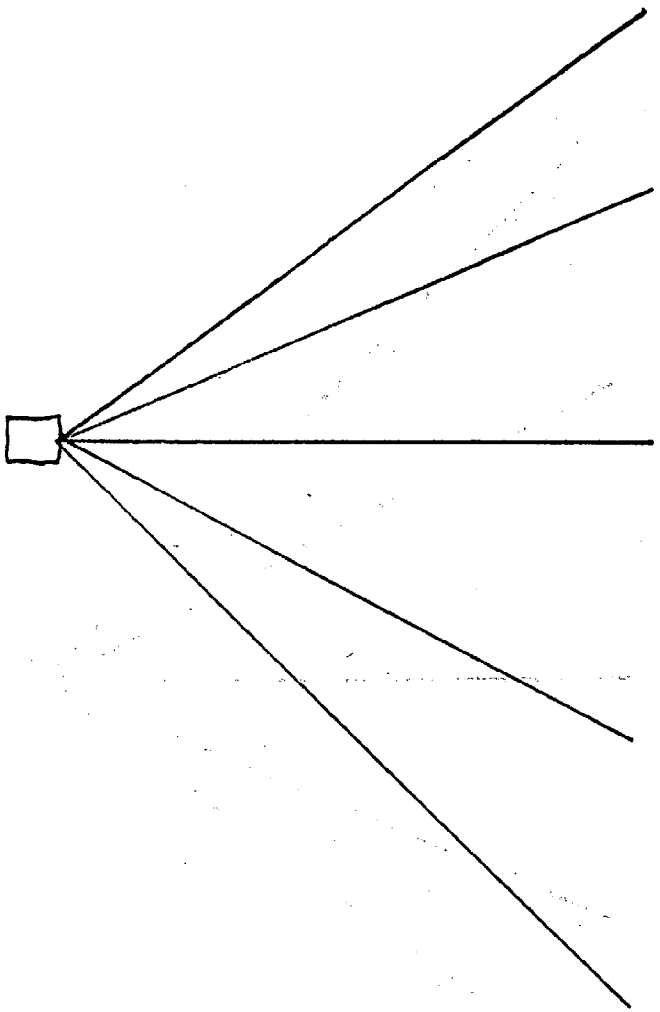
A number of distinct situations are possible, depending on the particular pattern of payoffs each participant faces. Figures 5 and 6 identify several of these possibilities.

A type I decision is one in which there are available options with positive benefits to both parties: to construct the facility could make both better off, or at least neither worse off.



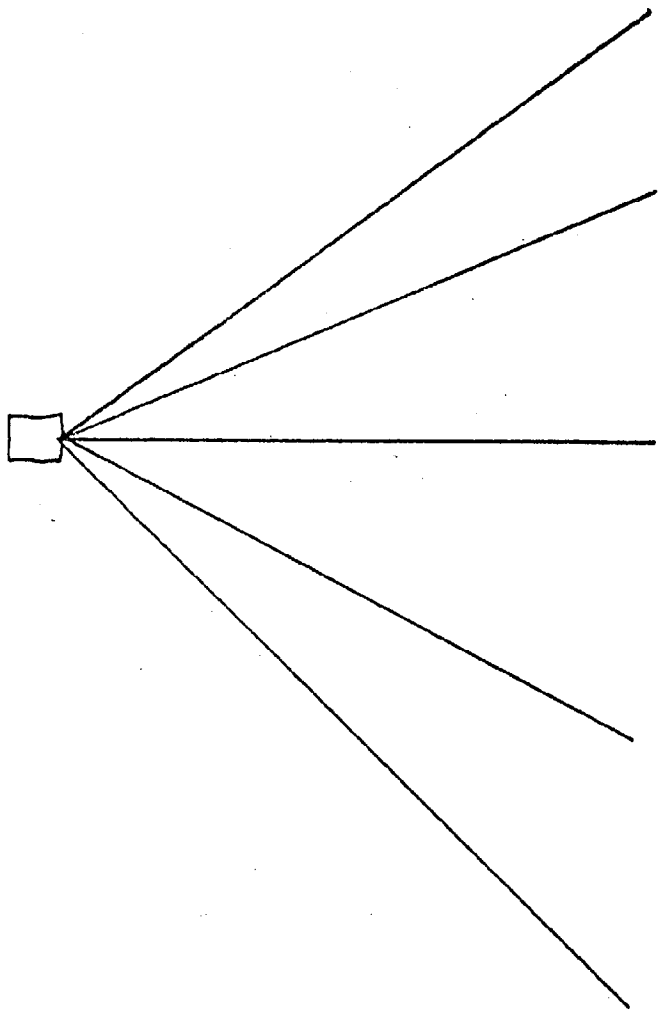
OPTION	NATION	STATE
A (no conditions)	A_n	A_s
B	B_n	B_s
C	C_n	C_s
D (stringent conditions)	D_n	D_s
E (status quo)	E_n	E_s

Figure 4. The General Siting Decision



OPTION	NATION	STATE
A (no conditions)	+	-
B	+	-
C	+	+
D (stringent conditions)	+	+
E (status quo)	0	0

Figure 5: A type I structure



OPTION	NATION	STATE
A (no conditions)	+	-
B	+	-
C	+	-
D (stringent conditions)	+	-
E (status quo)	0	0

Figure 6: A type II structure

A type II decision is pure conflict: every option would make one of the two parties worse off (with the possible exception of the status quo).

If this is truly a two-party decision -- if neither party can unilaterally effect the option of its choice -- then a type II structure surely makes agreement difficult. Although neither party might be able to impose its own choice on the other, either party might, in many cases, be able effectively to veto any choice it does not like (if, for example, both state and federal permits are required to site a facility). Under these conditions, a decision like the one depicted in Figure 6 would likely provoke a state veto of the project. There would be no incentive for the state even to discuss the matter with the nation, since, as Schelling points out, the unavailability of negotiation can win the status quo for the party that prefers it [16].

One can generalize this model by assigning numerical values to the payoffs. Figure 7 does this. The nation would like option A, which would create generous national benefits. The state would prefer the status quo or option D, the imposition of conditions so stringent that local costs are zero. (Indeed, the state may prefer D if there are political or public relations benefits from failing to use an outright veto.)

This structure raises some intriguing possibilities. If no sidepayments -- no "bribes" -- are possible, then the status quo is the only Pareto optimal choice. But, if the nation were to hold out the possibility of a $100,000,000 (or slightly greater) transfer payment if option A were agreed to, the state would be slightly better off by accepting the money than by imposing harsh conditions. The nation would be $899,900,000 richer, and the situation would be Pareto optimal.

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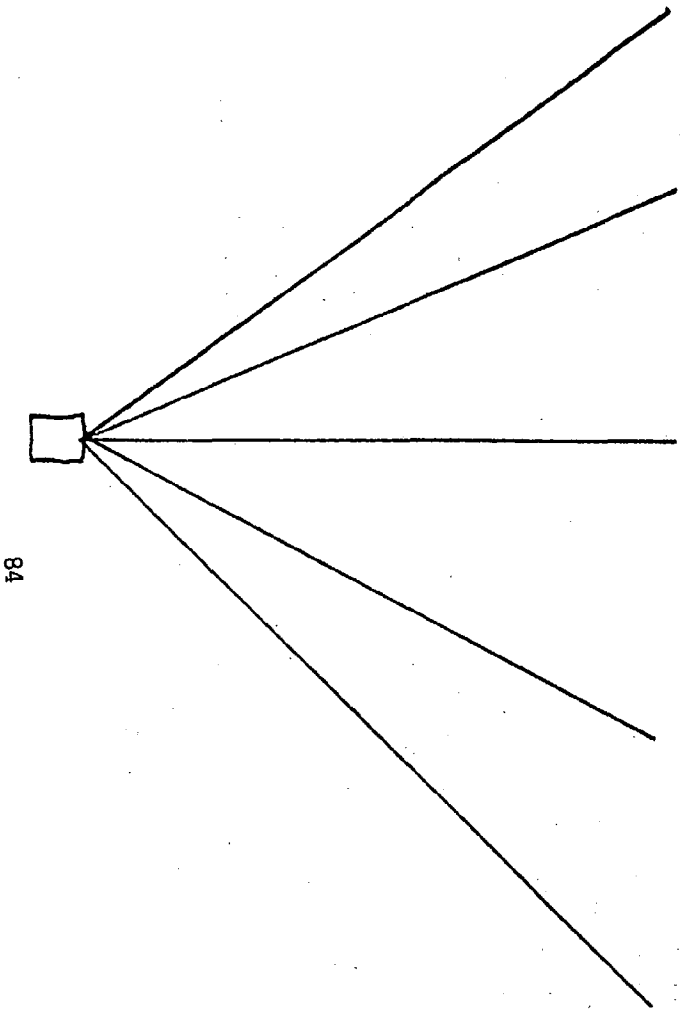
[16] Ibid. p.33.



OPTION	NATION	STATE
A (no conditions)	+$1 billion	-$100 m
B	+$500 m	-$ 50 m
C	+$100 m	-$ 10 m
D (stringent conditions)	+$ 10 m	0 (or perhaps $100K)
E (status quo)	0	0

Figure 7. State-Nation Conflict: Example 1.

It should be obvious that a different set of payoffs might create a wholly different situation. Consider the decision in Figure 8. In this artfully constructed example, the imposition of increasingly more demanding conditions reduces national benefits by precisely the amount it reduces state costs. In this case, the state's preferred option (either D or E) is the Pareto optimal choice.

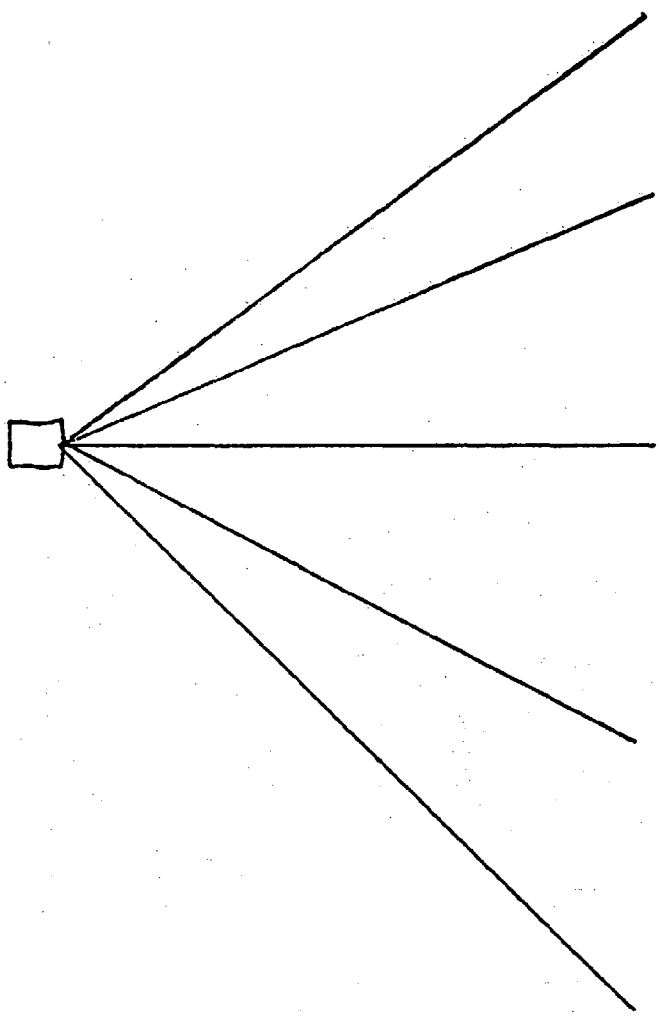
Of course, the imposition of conditions and direct compensation are both forms of sidepayment; and there may be other types of sidepayments -- other "deals" -- one could envision. If we are to have a Pareto optimal situation, the state must be compensated at a minimum such that its net costs are zero; and, if all three programs are available, a choice of the sidepayment scheme yielding the lowest cost at zero is optimal.

What might this mean in practice? State-local costs occur in a variety of ways, but the most significant are usually environmental damage and local fiscal impacts. The latter can frequently be quantified, although direct compensation may not be appropriate when, as is normally the case, these costs are temporary; in-kind compensation, in the form of schools, roads, hospitals, etc., is also possible. Environmental costs are perhaps a more significant problem to deal with. Because quantification of ecological effects is by no means straightforward, and because "selling the environment" is not often a politically viable idea, the state may be unwilling or unable to entertain direct-transfer compensation for the costs of environmental damage. In such a case, permit conditions may be the only feasible mode of sidepayment. Such conditions might include the use of safer but more expensive technologies (e.g., pipelines versus tankers), alternative locations, or tradeoff schemes whereby new pollution (notably air pollution) is permitted if the would-be polluter undertakes to reduce pollution by a specified amount elsewhere in the jurisdiction. Another type of sidepayment might be the

compensatory acquisition of land: if a facility by locating on the coast reduces the external benefits of the coast previously enjoyed by local citizens, the beneficiaries of the facility might in compensation acquire a suitable park, wilderness, or beach elsewhere and open it up for public enjoyment. Costs and benefits to the nation of siting a facility generally fall into the following categories.

- Benefits:
  - -- consumers' surplus;
  - -- federal tax, bonus, and royalty revenue;
  - -- industry profits; and
  - -- benefits of reduced dependence on imports.
- Costs:
  - -- "national" environmental costs.

In a market economy, the energy industry, which seeks, at least to a first approximation, to maximize its own profit, would initiate the action. It would seek to develop energy resources in the coastal zone if the expected return from such investment exceeds that expected from alternative projects. If development promises to be profitable (in the sense of adequate return on investment), it would generate consumers' surplus, federal revenue, and security benefits; but it may also entail costs to the environment that are felt nationwide. The federal government, in this model, becomes the guardian of both the consumers' surplus benefits and national environmental costs, and is able to trade off between these and arrive at a single "national" value for each siting option. The industry, with its ability to withdraw its proposal entirely and to suggest modified proposals, would ideally negotiate with the state and federal actors to reach a mutual agreement. The incentive for this negotiation is that, if there are net benefits arising from the proposed facility (which needn't always be the case, of course), then all three



OPTION	NATION	STATE
A	+ $1 B	- $100 m̄
B	+ $950 m̄	- $ 50 m̄
C	+ $910 m̄	- $ 10 m̄
D	+ $900	0
E	0	0

Figure 8. State-Nation Conflict: Example 2.

actors have an interest in sharing these benefits, each in its own way [17].

Notice that this model does not embody an "affirmative" notion of energy facility siting [18]. The nation, and the oil industry in particular, approach the state with proposals to site facilities. The state is viewed primarily as reactive, although, as the following will suggest, there may be incentives for a state to solicit or attract energy development if there are likely benefits for the state from such development (either direct benefits or sidepayments).

Figure 6 viewed additional energy from a new facility in a very general way as part of the overall production of energy. This was largely for purposes of illustration, and involved a number of simplifying assumptions (notably that prices were uncontrolled and that externalities were easily quantified). The idea of a market is nevertheless a powerful one; and the same concepts can be applied to a different sort of market, the market for energy facilities. In this formulation shown in Figure 9, no single state constitutes the only game in town [19].

Figure 9 shows what the situation might look like when the prospect of siting an energy facility would present a type I structure, that is, when the siting of a facility

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[17] Whether these three actors -- particularly the governmental actors -- really have things sufficiently together to effect this kind of self-interest dealing is considered in detail in Volume 3 of this report.

[18] A policy of "affirmative" state energy facility siting would require a state to foresee and to make specific provisions for specific energy facilities or energy development needs.

[19] In fact, this discussion applies even more fully to a market among localities rather than states. In this context, see Michael O'Hare's excellent article, "Not on My Block You Don't: Facility Siting and the Strategic Importance of Compensation," Public Policy, Vol.25, Fall, 1977. The central recommendation of this article - an auction among localities for the siting of facilities - is unhappily, ahead of its time.

would, under certain conditions, be of benefit both to the nation and to the state in which it is located. In this example, the national benefits of the facility are independent of the state in which it is sited (which is not generally true). Five states are candidates for the facility (a support base for Atlantic OCS exploration, for example); three of the states foresee several siting options that would be beneficial to them. In this situation, each of these states has an incentive to make offers which would lead the nation (i.e., the industry) to choose it over its rivals. Since state 1 has the most to gain, it can afford the biggest side-payment (in the form of tax breaks, reduced regulatory hassles, the provision of infrastructure beneficial to the facility, etc.). State 1 could offer slightly more than $200 million, besting the highest amount its rivals could tender, and retain $100 million in benefits from the facility. By siting the facility in state 1, the sum of benefits to the nation and the state is greatest. Resources have, in this sense, been channelled into their most productive use.

Consider a type II decision. Here, as Figure 11 indicates, we are back to the situation in which the nation would want to compensate the state for permission to site the facility. Which state would the nation choose to compensate? Clearly, the state whose costs could be reduced most cheaply to zero would be best from the nation's point of view.

In a two-party bargain, the state could estimate the benefits the nation is likely to receive from the facility. With this knowledge, it could conceivably "bid up" the compensation it receives from the nation so that it makes a healthy profit. With no alternatives open, the nation is better off taking what benefits it can than it would be under the status quo. Once again, there may be a number of Pareto optimal points in a two-party interaction, and one can't predict a priori which party will (or should) get which fraction

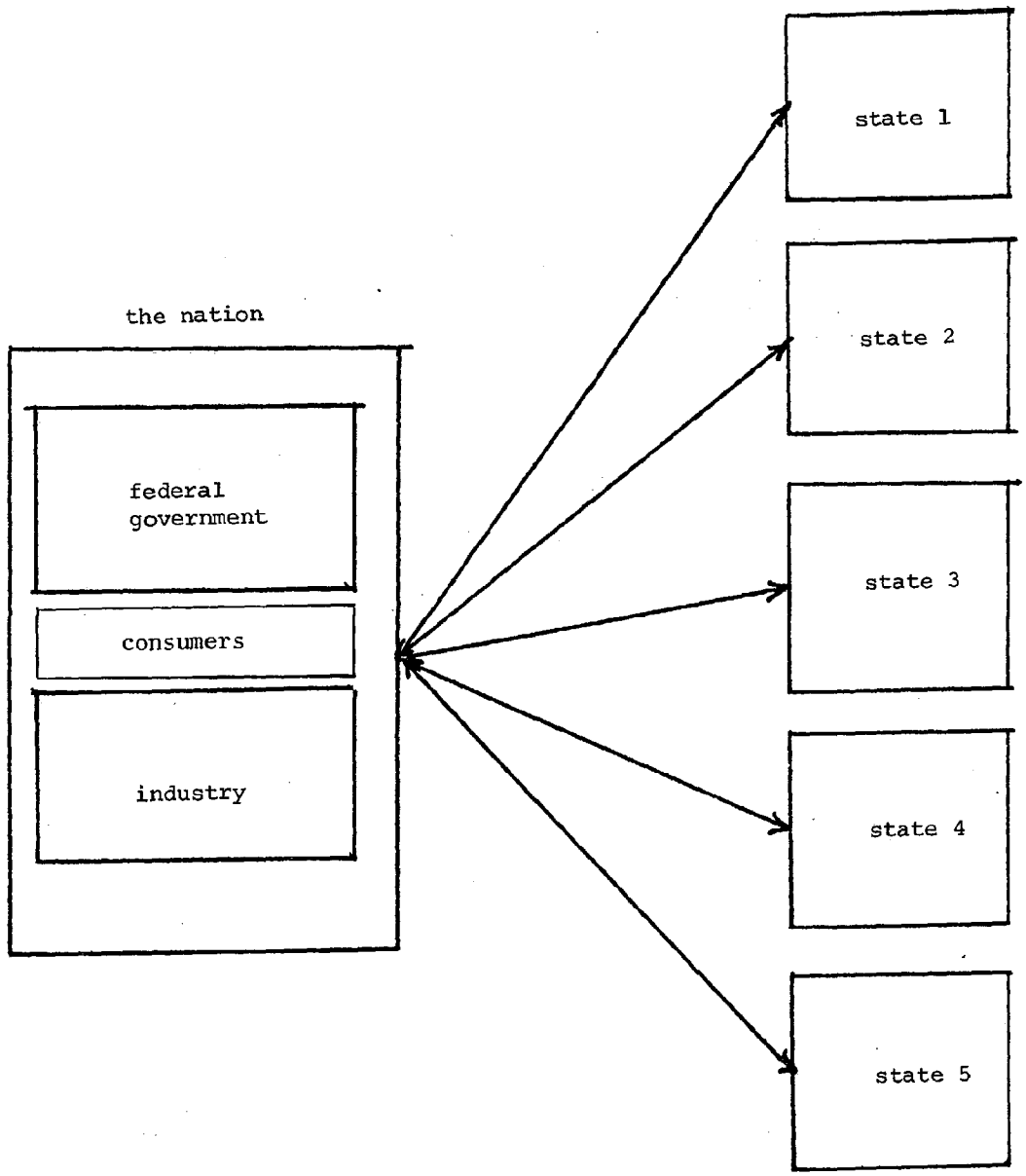

Figure 9: The Multi-State Model

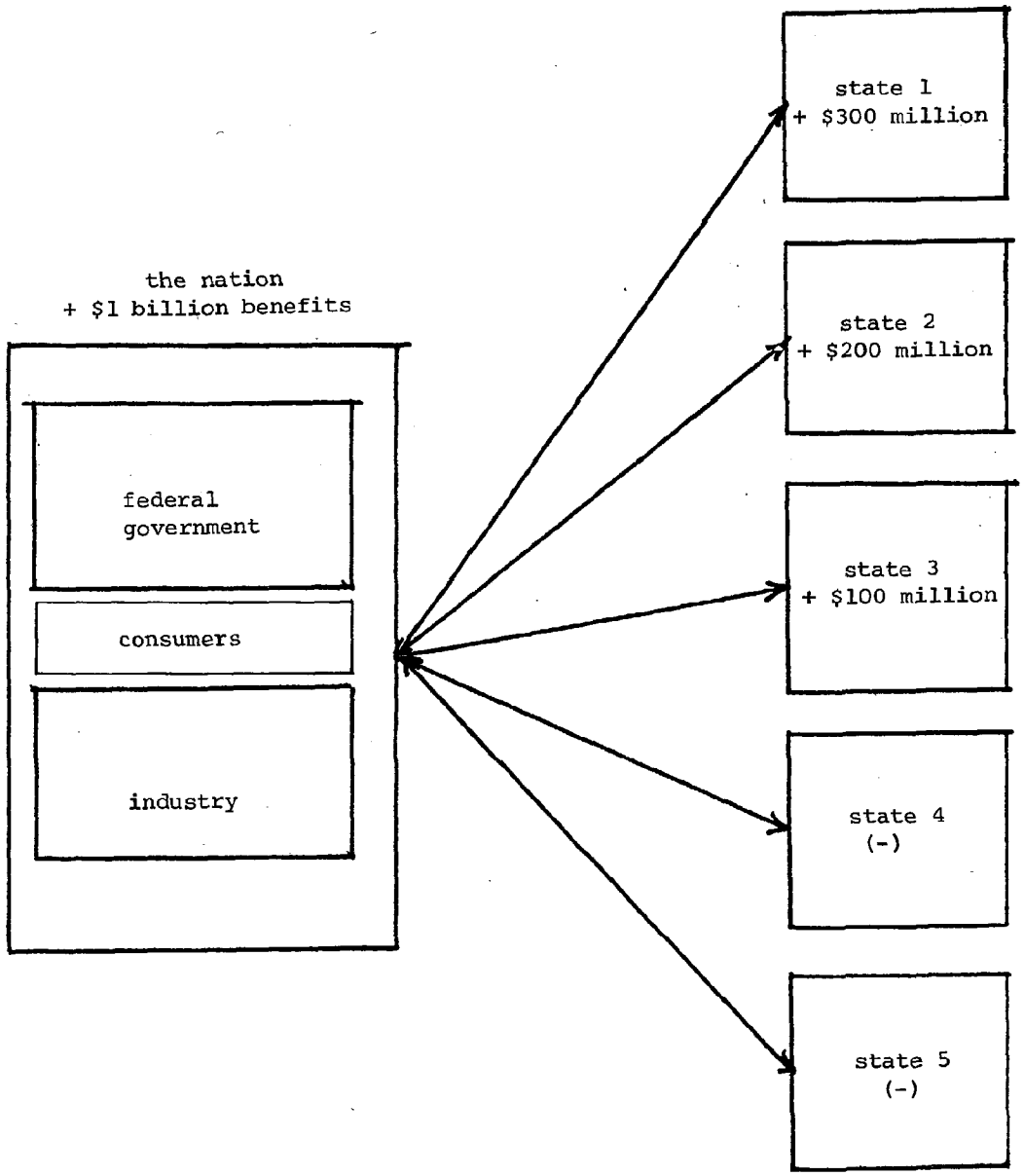

Figure 10: Multi-State Type I Structure

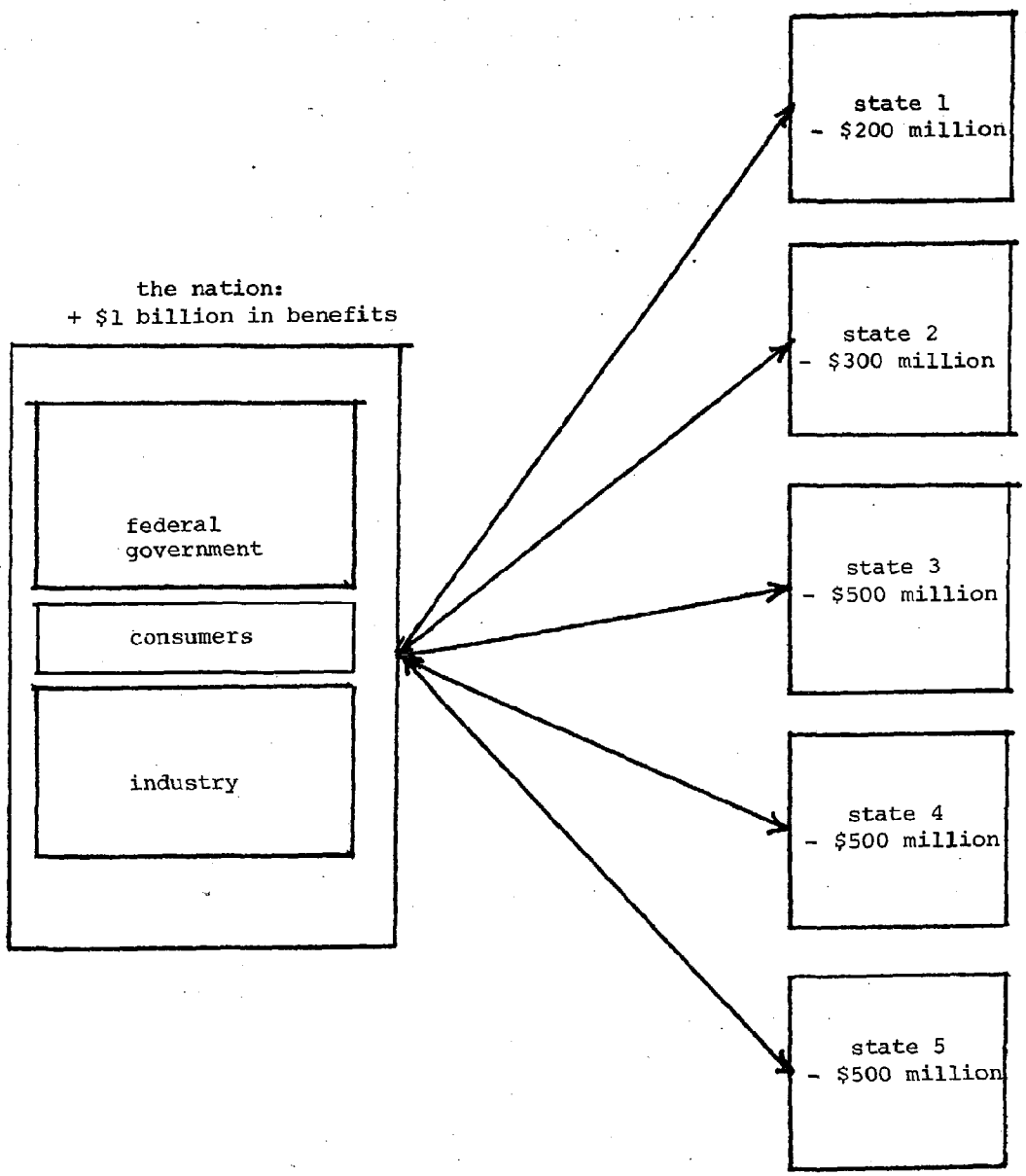

Figure 11 : Multi-State Type II Structure

of the pie: the outcome will depend on the specifics of the bargaining. (If the bargaining is open to the public, extreme outcomes might be made less likely by the introduction of the public's notion of equity or fairness.)

If, on the other hand, the nation has alternatives in other states, there is a limit to the amount above its costs any one state can extract from the nation. For example, if state 1 (in Figure 11) demands compensation in excess of $300 million, the nation is better off dealing with state 2. In this way, the nation can play the states off against one another, and, unless the states form a bargaining coalition (in violation of the Constitution), the end result would likely be a deal between the nation and state 1 in which that state receives between $200 and $300 million in compensation. Put another way, the amount of "rent" -- payment for unique or scarce factors of production -- any state could exact in an energy facility siting deal is limited by the alternatives available to the nation. The more alternatives there are (and the cheaper those alternatives are), the less "market power" available to any one state.

Coastal management and the CZMA can be viewed as a sort of "new federalism" that encourages coastal states to assert their own preferences over the use of their coastal areas and to formulate their own procedures to manage the coast. The extent to which coastal management, and the larger energy facility siting process of which it is a part, fit into and can be improved in light of these bargaining models is the subject of the next chapter.

CHAPTER III. CURRENT ISSUES IN COASTAL MANAGEMENT

A very general distillation of the foregoing analysis yields the following major points.

- An energy facility siting controversy can best be viewed from the perspective of a decision among a number of siting options (which may include the status quo).
- The appropriate way to decide among such options is on the basis of the effects -- the impacts -- of each option.
- The effects of a siting option will be felt differently by the various groups at interest in the controversy, and, in particular, by the developer and the various regions -- nation, state, locality -- involved.
- Bargaining is a natural and desirable method of conflict resolution in situations such as energy facility siting controversies.
- The effectiveness of bargaining as a tool for conflict resolution can be limited if:
  - -- there are institutional barriers to bargaining;
  - -- there are few effective ways of making transfers -- "sidepayments" -- from the gainers to the losers (principally in-kind or structural transfers rather than cash).

These simple points, and the analysis that lies behind them, provide a framework for understanding the energy facility siting problem and for recommending policies to improve the siting process.

One important set of mechanisms to deal with energy facility siting issues is comprised within the national coastal management program created by the Coastal Zone Management Act of 1972

(CZMA) and its amendments. The central aspect of the CZMA is a system of grants-in-aid to coastal states to enable and encourage those states to develop comprehensive programs to manage their coastal resources. In addition to program development and administration grants (under sections 305 and 306, respectively), the CZMA also involves:

- Energy facility planning: a requirement (under section 305(b)(8)) for an energy facility planning process to be made part of each state management program;
- Federal consistency: a requirement (under section 307) that federal actions affecting a state's coastal area be consistent with the state's coastal management program (once that program receives federal approval);
- Coordination and mediation: provisions requiring public participation and coordination with federal agencies during the development of state programs, as well as provisions for mediation of federal agency objections to the content of developing state programs (section 307(h)); and,
- Impact assistance: the Coastal Energy Impact Program (CEIP), which provides anticipatory planning grants, environmental grants, and public infrastructure grants/loans to help states and local governments deal with the effects of coastal energy activity (section 308).

A. The National Interest Provision.

Perhaps the most controversial energy-related aspect of the CZMA is the "national interest" provision of section 306 (c)(8). It requires that each state management program

> ... provide for adequate consideration of the national interest involved in planning for, and in the siting of, facilities (including energy facilities in, or which significantly affect, such state's coastal zone) which are necessary to meet requirements which are other than local in nature.

The focus of the national interest controversy has been the recent series of lawsuits brought by a coalition of industry plaintiffs -- notably the American Petroleum Institute (API) -- against the federal government in connection with several state management programs. The suits seek to enjoin federal approval of these programs, and thereby to stop the federal administrative funds and federal consistency powers attendant on program approval.

The first of these suits was brought in late 1977 in connection with the California management program [1]. Many of the points at issue are procedural; but several central arguments of the plaintiffs' complaint deal with the substance of the national interest in the management of coastal resources.

Conspicuous by its absence from the legal discussion of the California API v. Knecht suit is any discussion of precisely what is meant by "the national interest." That omission is not entirely surprising when one considers the difficulty of such a definition. At one extreme, the phrase embraces all the difficulties and unsolved problems of collective choice theory; at another extreme, the phrase is really empty, merely the rhetorical fluff of Congressional compromise.

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[1] API, et al., v. Knecht, et al., complaint filed Sept. 9, 1977, in Los Angeles Federal District Court.

It is nevertheless the responsibility of the Office of Coastal Zone Management (OCZM), as the agency charged with implementing the CZMA, to give meaning to this difficult phrase.

This essay will not enter the legal debate on this issue, but, rather, will address the more general questions.

- What exactly is "the national interest" in a facility?
- How can one determine whether or not the siting of a facility is "in the national interest"?
- What might constitute "adequate consideration" of this national interest?

In order to answer these questions, one has first to ask what a coastal management program is.

Like all resources, coastal resources are scarce. The traditional method in this country of allocating scarce resources among competing uses has been the market, which uses a price system to assign resources to the most highly valued use. The motivation for coastal management (and other government regulatory programs) is the realization that the market does not accurately perceive the full value of coastal resources because of the external or non-market effects of using those resources -- effects that do not enter into the calculations of the market systems.

In effect, then, a coastal management program is a system for guiding the market and for allocating coastal resources according to their "true value" as seen by those who formulate, approve, and execute the program. To do this, coastal management programs embody:

- policies to guide the use of coastal resources, and
- procedures -- a process -- to make allocative decisions.

The CZMA recognizes the diversity among states and the diversity among problems facing the coast; it charges each state with addressing the problems and needs peculiar to its own stretch of coast. Coastal management programs are thus explicitly state programs.

Because the scope and extent of siting effects felt by the state are generally different than felt by the entire nation, and because the state would normally value its resources differently than the nation as a whole might value them, it is reasonable to believe that the decisions effected according to a state management program, when considered by themselves might not be in the best interest of the nation as a whole. Thus, the requirement that the states "adequately consider" the national interest.

To most, adequate consideration implies that management programs must somehow "factor in" effects other than those felt significantly by the state as well as values other than those normally held by the state. At one extreme is the view that, under the CZMA, the state need merely acknowledge and reflect on the concerns of the nation. The other extreme, embodied in the position taken by API, et al., in the recent lawsuits, is that adequate consideration requires a "legally enforceable commitment" to act according to the interests of the nation, presumably at the expense of state interests if necessary.

Under the former view, the state is never required to act according to interests other than its own. This would at first seem to leave section 306(c)(8) a rather hollow requirement [2]. But this report provides another view: the state clearly has every incentive to act according to its own interests -- to allocate resources based on the effects it is likely to feel from the various proposed uses and according to the

[2] One might argue that, once the executors of the management program have "considered" the national interest in this sense, they will frequently act according to its dictates, presumably out of some sort of patriotic altruism. Such argument is not very persuasive.

values it places on those effects. Furthermore, under appropriate circumstances, this parochial attitude will lead to decisions that are in the interest of both the state and the remaining states (the nation) if enough flexibility exists for bargaining to take place.

Indeed, there is little economic rationale for a legal requirement that a state accommodate a proposal that yields net national benefits if it also produces net state costs. Any such requirement is effectively a transfer of benefits from the state to the nation.

The interests of one state are frequently at odds with the interests of the remaining states (of the "nation as a whole"). But there are usually a multiplicity of options attendant on the proposed siting of a facility; each option will affect the state and nation in different ways. And, by manipulating these options through bargaining in a way that transfers benefits from potential gainers to potential losers, an outcome that is in the interest of both the nation and the state can result. If the facility has net national benefits -- all benefits are greater than all costs -- then it is always theoretically possible, and often possible in practice, for the national gainers to compensate the state/local losers. This is because the surplus of the whole can make up for the defecit of a part.

An assumption implicit in the discussion so far has been that a coastal management program constitutes, in effect, a state-wide coastal resources "brain" that, through its policies and procedures, makes allocative decisions according to the "true value" to the state of competing uses. This is an assumption that requires examination; and this report will turn to that issue shortly. But, assuming that a coastal management program does balance properly among competing state interests (in the siting of an energy facility), what comparable mechanism is there to balance competing national objectives (e.g., the

national objective in market-economic benefits vs. the national objective in wetlands protection)? And how are the arbiters of the national objectives and the executors of the state coastal management program brought together at the bargaining table to effect a mutually agreeable decision?

The notion that adequate consideration should somehow involve the inclusion of national preferences and view into state decision-making has led to the bewildered query, "Who determines the national interest?" Clearly, if one feels he should make decisions according to preferences and values other than his own, it is important to know who's preferences and values he should substitute. Should the national interest be determined by consulting various federal agencies? Should it be articulated by OCZM? Should it be determined jointly by federal, state, and local officers?

If one abandons, however, the idea that a coastal management program should make decisions based on values and concerns other than the state's own, the question becomes a good deal clearer. Whether there is a national interest in the siting of a facility is determined not in the abstract by any statement or articulation, but by the actions of concerned parties legally empowered to influence the decision. In a direct sense, this includes the developer and the executive and regulatory agencies of the various levels of government. The general public, interest groups, legislatures, and the judiciary are also included in an indirect fashion. In proposing to site a facility, the energy industry, acting according to the price signals of the market and the economic regulation of the federal government, is participating in the process which ultimately determines whether or not a proposed action is in the national interest. In applying their permitting processes to the industry proposal, federal, state, and local agencies are participating in the same process. Finally, the authorities granted to these principal agents

are determined by the courts and legislatures of the several levels, who in turn are influenced by interest groups and the general public.

From this point of view, the thrust of federal coastal management policy regarding the national interest should not be in the direction of requiring a state to act according to interests other than its own; rather, it should be in the direction of improving the ability of the relevant agents -- each acting in its own interest -- to bargain and to reach accord on an energy facility siting proposal.

B. Characteristics of Adequate Consideration.

In order to provide for adequate consideration of the national interest (as this report interprets it), a management program should have the following characteristics.

(1) The program should adequately consider the state's own interest. That is, the program should perceive the true costs and benefits to the people of the state of alternative resource uses and make allocative decisions accordingly.

(2) The program should be geared to permit and encourage bargaining. This would involve:
   - a decision-making process that is explicitly able to interact with industry and the federal permitting agencies and that has the flexibility to consider and propose alternative siting options;
   - explicit statements of mitigation measures (sidepayment possibilities) that are acceptable under the management program;
   - no arbitrary exclusions of potential energy facility uses; and,
   - no inflexible policies or prohibitions that would seriously impede bargaining on national interest facilities.

(3) The program should demonstrate a capability to analyze the effects of siting options, and should be required to disclose the results of such analysis. The program should also be able to "consider," i.e., to perceive and understand, the national costs and benefits of the siting options. Requirements for this sort of "consideration" facilitate intergovernmental coordination.

Point 1. In many ways, the key to adequate consideration of the national interest is adequate consideration in the management program of the state's own interest.

If a program is not a sound instrument for the allocation of coastal resources, then such a program could, in a bargaining context, result in state intransigence or the exaction of inappropriate compensation from "national" players.

From a legal point of view, the CZMA requirements for program approval set the standards for adequacy of a state's procedures for managing its coastal resources. Whether coastal management, as constituted by the CZMA, interpreted by OCZM, and implemented by the states, is really an effective and desirable system for allocating coastal resources is a program evaluation question outside the scope and charge of this study. The sorts of specific questions one would ask in such an evaluation might include:

- What are the implicit tradeoffs that have been made in coastal management permit decisions? Have these tradeoffs been consistent in the values they imply? Are these implied values reasonable?
- What are the transaction costs of the program? Specifically,
  - -- What are the government costs of program administration?
  - -- What are the costs to private interests that interact with the management program, including the costs from increased uncertainty in private sector decision-making?

Using inconsistent or inappropriate values in coastal management processes would result in resource misallocation costs (economic inefficiencies). Ideally, an evaluation should compare any such costs it discovers (plus the attendant

transaction costs) with the resource misallocation costs of no government intervention and with the costs of alternative regulatory schemes such as public purchase of coastal resources and differential taxation of coastal land.

Point 2. Section 305(b)(8) of the CZMA requires that a management program include

> [a] planning process for energy facilities likely to be located in, or which may significantly affect, the coastal zone, including, but not limited to, a process for anticipating and managing the impacts from such facilities.

The notion of "anticipating ... impacts" fits extremely well within the effects-oriented framework this study has adopted. Furthermore, the requirement for "managing ... impacts" finds a natural interpretation in the flexible bargaining-oriented process suggested above as a characteristic of "adequate consideration." A public body such as an agency responsible for carrying out a coastal management program can "manage" the impacts of a facility only through its ability to deal with the other actors who have a say in the facility's siting. That implies, for example, the ability to reject -- to veto -- the proposal entirely; but it also implies the ability to consider and propose alternatives to the proposal, to consider and propose mitigation measures that create new siting options, and to condition acceptance of the facility on these alternatives or mitigation measures. In short, a coastal management program must be able to bargain and accept structural or in-kind sidepayments in order effectively to manage the impacts of a facility.

This means that one characteristic of a management program that provides for adequate consideration of the national interest must be an effective 305(b)(8) process. This does not mean that the 305(b)(8) process should necessarily be informed by any values or preferences other than the state's own in managing facility siting impacts; but it does mean that,

in pursuing the state's own interest, the process remain attuned to compromise and negotiation. And such a process would have the characteristics outlined in point 2.

Point 3. There is no simple way to guarantee that the executors of the management program will bargain in good faith. While bargaining is almost always in the best interest of the state, the executors of the management program are at most representatives of the state; they are human beings, and, as human beings, they may frequently have personal incentives quite different from those of the state as a whole. The most one can do is to create a management system that reflects the values of the state as accurately as possible (point 1) and that is free from any obvious structural impediments to bargaining (point 2).

Furthermore, it is impossible to guarantee that, in any particular energy facility siting situation, the state (and the state program's executors) will not find themselves with considerable "market power" over the other actors, that the state will not have the nation over a barrel to some degree.

One way to combat these potential problems, though, is by attempting to marshal the forces of rationality and public opinion.

Each management program should require that, in making their management decisions, the program executors reveal and open to public scrutiny their analysis of the costs and benefits, both state-wide and nation-wide, of their energy facility siting decisions.

In some ways, this sounds like a call for increased paperwork. In fact, though, it is a call for improvement in the analysis that already is or should be carried out as part of the coastal management process or as part of the federal environmental impact statement (EIS) or analogous state environmental review process [3]. One might argue

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[3] Recommendations for improving analysis of this sort, along with a discussion of the role of analysis in the energy facility siting process, can be found in Volume 2 of The CTARP Energy Facility Siting Study.

that to require already overburdened state coastal management agencies to develop a quantitative analysis capability is a fuzzy-headed bureaucratic suggestion of the worst sort. But the thought that such agencies would otherwise propose to interfere in the market system and allocate coastal resources without a well-developed capability for understanding and measuring the costs and benefits of alternative allocations is, to some minds, even more shocking.

A requirement that focuses public attention (as well as the attention of the other agents involved) on the analysis of effects (and on the distribution of effects) creates an incentive for each actor in the controversy to perform as credible an analysis as possible. Since a good quality analysis is more easily supported as credible, such a requirement can also help foster the use of better analysis in decision-making. This would have two benefits.

- It would militate in favor of a coastal management program discovering and acting in accordance with the state's true interest.
- By bringing public attention to bear on the costs and benefits of alternative siting proposals and mitigation schemes, it lowers the ability of the state to exact compensation from project sponsors greatly in excess of state costs.

C. The Fallacy of Need and Reactive vs. Active Regulation

The regulations promulgated by OCZM governing section 305 program development grants require the following of a state in developing its 305(b)(8) energy facility planning process [4].

(1) An identification of energy facilities which are likely to locate in, or which may significantly affect, the coastal zone;
(2) A procedure for assessing the suitability of sites for such facilities;
(3) Articulation of state policies and other techniques for the management of energy facilities and/or their impacts;
(4) A mechanism for coordination and/or cooperative working arrangements, as appropriate, between the state coastal planning or management agency and other relevant state, federal, and local agencies involved in energy facility planning and/or siting, including conformity of siting programs, where they exist, with the coastal zone management program; and
(5) An identification of legal or other techniques that can be used to meet management needs.

While somewhat general, these requirements are not inconsistent with the characteristics of an energy facility siting process suggested earlier in this report. In particular, the regulations recognize, in section 920.18(b), that the interests of the nation as an aggregate whole are determined by making tradeoffs among diverse objectives in the face of a limited set of opportunities [5]:

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[4] 15 CFR 920.18.

[5] The regulations use the term "national interest" where we would prefer the use of terms such as "national objective" or "national concern." In this study, an action is in the national interest if it is the best action among feasible alternatives. The notions of best and feasible are determined in accordance with the entire set of rules and procedures of the nation. The reasoning underlying this interpretation is presented in Chapter V of Volume 3.

> Essentially, a balancing of national interests between resource preservation and conservation, on the one hand, and energy needs, on the other hand, must be achieved in order to avoid arbitrary restrictions or exclusions of either interest.

Nevertheless, there are some troubling aspects of the discussion in these regulations.

Section 920.18(b)(1), in discussing the notion of adequate consideration, uses phrases like "... being responsive to not only the needs of energy users in the coastal zone but also the energy needs in the State, region, and the Nation." What "responsive" means in this context is not entirely clear, but one is led to suspect that it represents some weak form of accommodation to the "needs" of energy users. These "needs" are evidently objective in character and are subject to "determination" as part of the 305(b)(8) process.

> Particularly in determining greater than local and coastal zone energy needs, consideration must be given to (1) national and other projections of energy needs, (2) assessments of the best mix of energy sources (e.g., coal v. gas v. oil) to meet these needs, and (3) techniques for reducing demands for energy (e.g., impact of energy conservation measures). Further, determination of whether the coastal zone or resources are required to serve greater than local needs should be based, in part, on consultation with relevant Federal agencies. (Emphasis added.)

The first point to notice about this phraseology is that it betrays membership in the Patriotic Altruism school of adequate consideration. The thought of a coastal zone resource "required to serve" national "needs" conjurs up visions of receiving a draft notice in one's mailbox. Once a state opens its eyes to this "need" (presumably as a result of consultation with federal agencies), surely it will proudly sacrifice its coastal resources to the cause. Less sanguine individuals who belive in the existence of "needs" might question whether the state would require some prompting to accommodate the national need once determined: a "legally

enforceable commitment," perhaps. Section 920.18(a) imposes no such requirement on the state.

In fact, of course, there are few real needs in American society at the level of resource use under discussion: there are only degrees of want, i.e., preferences and values. And resources are always ultimately allocated according to preferences, not according to needs. Even considering its notable imperfections, the market system arguably allocates resources more or less according to the preferences of consumers. Other methods of resource allocation also boil down to preferences.

What are the implications of believing in the "need" interpretation of adequate consideration? Consider a coastal management agency presented with an energy facility siting proposal. The agency, as suggested in section 920.18(b)(1), investigates projections of energy demand as well as energy mix assessments. Perhaps (hypothetically) it comes to the conclusion that the market system and the federal government value "hard" technologies too highly: what the country needs is solar energy and conservation. Indeed, the agency decides, solar and conservation could, if properly encouraged, account for a startling X per cent of our energy needs by the year 2000.

If this agency believes in the needs/Patriotic Altruism approach to adequate consideration, it might quickly decide that no "hard technology" facility is "needed" in the coastal zone. It would thus reject the proposal summarily.

Consider, now, an identical agency in an identical state faced with the same proposal. This agency has also studied the energy situation, and has reached the same conclusion as the first agency about the relative value of "hard" versus "soft" technology.

This agency believes, however, that its job is to assure that coastal resource use decisions are made on the basis of the true cost to the state of those uses, and that the important consideration in energy facility siting is not the "need"

for the facility but the effects of the facility. This agency may well allow the siting of the facility because, say, the developer has agreed to all pollution-control conditions, has agreed to buy and donate to the state three wetlands areas and a beach, and, on top of that, has agreed to hire Y thousand local workers. The fact that the nation values this "hard technology" facility so highly means, as far as this second agency is concerned, only that they can expect the developer to pay the state more for the privilege of siting the facility than the agency believes is really warranted given its perception of "the national interest.

The state, in this second example, has considered the national interest not by asserting its opinion (or anyone else's opinion) of what's good for the nation; rather, it has adequately considered the national interest by valuing the state's resources appropriately and by being willing to participate in the process which determines whether or not an action is in the national interest.

This second agency may just as easily scuttle the entire project; but it would do so not because of its perception or anyone's grand proclamation of national needs or the national interest, but because the costs of the project to the state could not be compensated by any ameliorative action the other actors were willing to undertake.

The point of the preceding has been to alert readers to the rhetoric and deception commonly associated with the use of the word need in public policy documents. Things are needed only to accomplish some objective. If the members of a group do not unanimously concur with the objective - indeed even if they only differ in the intensity with which they desire the objective, then the notion of collective need is flawed.

Assertions of national needs, like common proclamations

of the national interest, are used in strategic situations with the hope of shaming opponents into submission. While occasionally effective for isolated controversies, these tactics contribute to permanent tensions. In contrast, the establishment of bargaining processes has the potential of consistently redressing or preventing real damages in specific cases, and as a consequence of mitigating the underlying state of conflict.

The preceding comments on the fallacy of collective needs are related to the long-standing controversy regarding reactive versus active regulation. As used herein, a public entity is reactive if it simply evaluates facility siting proposals submitted by the private sector and accepts or rejects them in accordance with its objectives or standards. At the other extreme, a public entity plans actively if it seeks a priori to determine the present and future need for various types of facilities, and upon such determination goes about facilitating and encouraging the construction and operation of needed facilities, and discouraging proposals for unnecessary facilities. The traditional permit process is thus reactive while the regulations associated with section 305(b)(8), quoted earlier, are clearly active in tone.

The desire for active planning stems in large part from the difficulties experienced by public officials in anticipating damages to environmental resources under their stewardship. One way of solving this problem has been to establish effective control over all activities capable of adversely affecting the environmental resources. Then at least all damages can be anticipated, and this is in large part the philosophy behind coastal management.

But this philosophy can be carried too far. To establish effective controls against environmental damage, one need only retain a veto power; it is not necessary to usurp the planning and entrepreneurial role of the private sector by

determining the need for various goods and services. Of course, this can be done under the name of nationalization, but it is assumed here that the nation is not yet prepared to force the energy industry to walk that plank. The experience of other nations repeatedly informs us that it is most unlikely that the public sector can anticipate and meet the nation's energy demands with an efficiency which approaches that of the private sector.

But the central problem remains. Just as nationalization would damage the efficiency of the nation's energy supply system, so would a regression to laissez faire policies damage the environment. If there any way out of this dilemma?

This Study suggests that there is. The effect of environmental legislation has been to establish regulatory agencies as proprietors of environmental resources that were previously held as common property. The negative powers accorded these proprietors are generally sufficient to prevent damage, if used creatively. Strong incentives remain for developers to design proposals such that they meet the approval of the environmental proprietors. Acceptable proposals can be developed iteratively, as in the SOHIO case, by á natural bargaining process.

In summary, this Study urges integration and innovation of the traditional permit process (as described in Chapter IV), rather than the establishment of public agencies engaged in detailed economic and environmental planning.

D. The California API v. Knecht Suit and Program Specificity.

A number of the claims made by API, et al., have substantive implications. In particular, the September 9, 1977, complaint charges:

- The California program does not fulfill the approval requirements of the CZMA, and is so "general, indefinite, uncertain, vague, lacking in specifics, and incomplete" that a federal consistency determination would be impossible.
- The program does not give express assurance that the national interest in energy planning and siting will be adequately considered; specifically, the program contains no "legally enforceable commitment" to give adequate consideration to the national interest.

A "legally enforceable commitment" to consider the national energy objectives, if interpreted to mean that the program should make decisions on the basis of the national concern for energy at the expense of the national concern over other effects or at the expense of the state interest, has no economic rationale.

From a national point of view, an energy facility siting decision should not be made without examining all the nationwide effects of that decision. This means, for example, that the nation should reject a proposal that has negative total benefits (net costs) when all effects are considered, even if that proposal shows benefits in the energy column. Furthermore, there is no economic justification for suggesting that a proposal with net national benefits be accommodated if it is not in the state interest. As Chapter II of this report suggests, a reallocation of resources that leaves some parties better off but some worse off is not a desirable reallocation when judged against the Pareto optimality criterion of welfare economics.

The other substantive aspect of the API arguments is less easy to reject.

Whether the California program meets the approval requirements of the CZMA is a legal, not an economic, question. But there are some economic undertones to the charge of program inadequacy and to the assertion that the program is "general, indefinite, uncertain, vague, lacking in specifics, and incomplete."

A suggestion that a coastal management program is inadequate speaks to either of two concerns. Either

(1) the program will likely result in resource misallocation because its decisions do not reflect the true costs of resource use, or
(2) the program will likely result in high transaction costs.

It is the second of these concerns about which API, et al., seem most concerned.

The complaint charges that the program is inadequate because, in effect, its structure is such that the outcomes of its decision process cannot be easily predicted in advance. Specifically, the complaint argues as follows.

> At present California has not adopted and does not have a management program including the components designated by the CZMA. Rather, the California Legislature, by adoption of the Coastal Act established general procedures and policies as a framework for future development of a management program through local governments and local land use planning. Local governments are not scheduled to complete local coastal programs and have them certified by the State Coastal Commission until about 1980. The designation of permitted and prohibited use of the coastal zone and the inventory and designation of areas of particular concern within the coastal zone which are required by CZMA Sections 305(b)(2) and (3) to be included in a "management program" have not been undertaken. They are to be developed in the future by procedures established in the Coastal Act in which local governments, regional commissions, the State Coastal Commission and the Legislature will be participants [6].

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[6] API, et al., complaint, p. 12.

In this view, an adequate program would be developed "through local governments and local land use planning," and would address the land use planning-like requirements of sections 305(b)(2) and (3) in a way that the proposed California program allegedly does not.

This Study has frequently suggested that flexibility in a resource allocation process is important to achieving appropriate allocations and to considering the national interest adequately. But the more flexible a program is, the more discretion is vested in the executors of the program, and the greater uncertainty there is in the decisions the program will make. Uncertainty of this sort is costly to firms whose investment decisions depend on the decisions taken by the management program; put another way, there is a considerable information value to knowing with greater certainty the reaction of the management program to the firm's proposals for investments affecting the coast. (This cost of uncertainty hurts not only industry, but is a real cost to society as well in terms of the resources wasted in inefficient private sector planning.) It is not entirely surprising, then, that API and its co-plaintiffs should stress a need for more specific planning of the detailed (and inherently less flexible) land use planning sort.

One can envision a "specificity spectrum" in this regard. At one extreme would be a program that sets up procedures -- a permit process, public hearing requirements, etc. -- but sets no standards or criteria for decision-making. Such a program would be extremely flexible, with the ability to adapt to any proposal without the constraints of any inflexible criteria. But such a program would also vest great discretion in the program executors, with little assurance that these executors will make decisions that are consistent, that are free of political or other untoward motivation, and that are in the true interest of the people of the state, in the sense of a complete account of costs and benefits.

At the other extreme would be a program of detailed land use planning and zoning that specified immutably a narrow range of permissible uses and performance standards for each parcel of land along the coast. Such a program would leave little room for doubt in private sector planning; but such a program would also soon result in severe misallocations of resources as it rejected proposed variant uses of high value and as the land use preferences of the population evolved and changed. (Alternatively, the local planners might be sensitive to the need for efficient resource allocation, and, as a result, be receptive to frequent requests for variances. As the number of variances increased, any illusion of certainty or definition the plan may have had would soon dissipate.)

Clearly, most programs will lie between these extremes. But the flexibility/specificity tradeoff remains perhaps the central substantive dilemma of coastal management. While both individual firms and the general business climate can be affected by the resource misallocation costs of inflexibility, the costs of uncertainty are apparently of greater concern to API, et al. The costs of inflexibility may be greater to society, though, particularly when one considers that the governmental transaction costs might be higher in a more intricately planned program. In the end, this is an empirical question and, again, a program evaluation question outside the range of the present study.

There is, however, one way of reducing the costs of uncertainty without incurring resource misallocation costs due to overly rigid planning. That is by increasing the specificity of coastal management decision processes, such that they are more predictable. In contrast to substantive matters, there is no advantage associated with procedural laxity. This point is subtle. One can obtain predictability by preparing and announcing detailed substantive plans for all time or one can obtain it by establishing a mechanism

which reacts predictably to varied inputs (e.g., facility siting proposals).

This Study strongly urges the latter route as being appropriate to the uncertain future demands for coastal resources. The ideal process of cooperative analysis and bargaining presented in the final chapter of this essay is predictable in the sense that it effectively precludes the siting of facilities without net national benefits and ensures that facilities that are sited are superior to any alternatives available to any of the participating parties. The ideal process promises each party immunity from uncompensated a priori damages, but does not promise any party certain benefits.

E. Uses of Regional Benefit.

Section 306(e)(2) contains a requirement for program approval analogous in many ways to the "national interest" requirement of section 306(c)(8). This "uses of regional benefit" provision requires that a program provide

> ... for a method of assuring that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude land and water uses of regional benefit.

The analysis of the national interest developed in this report is almost directly applicable by analogy to the uses of regional benefit issue. The focus is shifted, however, from the interaction of the nation and the states that compose it to the interaction of the state and its political subdivisions.

The issue is somewhat different, though, in that the primary means of resource allocation at the local government level is not a "program" of policies and procedures but straight-out specific planning and zoning. To the extent that there is, however, an acceptable method for obtaining a zoning variance or the equivalent, the analogy with the national interest goes through smoothly. Once again, there is no economic reason to require a local community to accept a facility of benefit to the state or region if that facility will entail net costs to the community. If the facility provides high benefits to the region, then it should be possible to discover either

(a) other communities that also perceive the facility as a net benefit and so would be willing to accommodate it, or

(b) ways of compensating a community for its losses in a way that will make acceptance of the facility a net benefit.

F. Federal Consistency.

The federal consistency provisions of the CZMA also involve the interaction of state and national interests.

Section 307 requires that federal actions significantly affecting the coastal zone be undertaken in a manner "consistent" with the appropriate federally approved state management program. These federal actions comprise:

- direct federal actions, including development projects;
- federally licensed and permitted activities (including those "described in detail in OCS plans"); and
- federal assistance to state and local governments.

Federal consistency also includes provisions for mediation and review by the Secretary of Commerce in the event there is a disagreement between the state and the federal agency over the consistency of a federal action.

What exactly does it mean for a federal action to be "consistent" with a coastal management program?

A coastal management program consists of a process -- usually a system of permits -- for making resource allocation decisions and a set of policies to guide those decisions. Consider, for example, the policy in the California program governing "coastal dependent industrial facilities."

> Coastal dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nevertheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible [7].

[7] California Coastal Act, section 30260.

This policy is surely a general guide to action. But what does "feasibly" mean? When is an alternative location "infeasible"? And what constitutes an adverse effect on the public welfare? Is a loss of economic benefits or an increase in energy costs an adverse effect? Or must some segment of society be forcibly cut off from energy, or be perhaps reduced to indigence or starvation, before the effect is adverse?

Rational and sound resource allocation is inherently a quantitative process involving a balancing, a weighing, of costs and benefits on a case-by-case basis [8]. A fixed qualitative rule or "policy" can seldom anticipate all the possibilities, options, or variations that will arise in the use of coastal resources; hence the need to leave maneuvering room for administrative discretion in individual cases.

But it is this discretion -- this necessary vagueness -- that makes an a priori determination of consistency difficult if not meaningless. The flexibility/specificity dilemma once again.

In the case of California, the eventual formulation and approval of local coastal programs will provide a stronger basis for determinig consistency, since these programs are intended to lay out in detail the uses to which each segment of the coast can be put. But even the dictates of a local coastal program are not immutable. The programs are subject to amendment by the local governments themselves and, in some cases, by the state-level coastal commission using its override powers.

> The commission may, after public hearing, approve and certify the proposed amendment if it finds, after a careful balancing of social, economic, and environmental effects, that to do otherwise would adversely affect the public welfare, that a public

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[8] Volume 2 of this Study discusses ways of performing case-by-case analysis of this sort, and thus indicates how a policy like this example might be interpreted in a quanitative way. Volume 3 discusses the notion of "feasibility."

> need of an area greater than that included within the certified local coastal program would be met, that there is no feasible, less environmentally damaging alternative way to meet such need, and that the proposed amendment is in conformity with the policies of this division [9].

A proposal thus could be inconsistent with a local coastal program but consistent with the overall state program. In the end, the more or less vague policies of the state program, as interpreted by the executors of the program, are the final basis of consistency.

"Consistency" is generally understood to mean conformance of federal actions with the state program in some sense -- and therefore to imply that federal agencies are somehow to accommodate the state interest. In this view, the "national interest" provision of section 306(c)(8) and the federal consistency provisions of section 307 are complementary parts of a "macro bargain" contained within the CZMA. The national interest provision (interpreted to mean that the state should occasionally accommodate facilities that are in the national interest but not in the state interest) is balanced by the federal consistency provision (interpreted to mean that, at other times, the federal government must do things that are in the state's interest but not in the national interest).

Such a bargain might at first seem compelling; but it in fact creates more problems that it solves. Rather than eliminating conflict-producing situations in which one group must accept an action that is not in its own interest, this "macro bargain" interpretation ensures the proliferation of such situations.

As a reading of the comments made on OCZM's federal consistency regulations[10] by states, federal agencies, and industry will quickly indicate, there has been an overwhelming

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[9] California Coastal Act, section 30515.

[10] See the preamble to the federal consistency regulations, 43 FR 10510, March 13, 1978.

tendency to view the 307 provisions not as a way of increasing cooperation and reducing friction but as an attempt to redistribute power.

In most areas, the federal consistency provisions do not give a state any new power. The acceptance and nature of federal assistance to state and local governments is already under the control of the state and its local governments. Furthermore, there are few federally licensed and permitted activities that are not also under the jurisdiction of the state and its local governments.

But in the case of direct federal activities (primarily development projects, such as those undertaken by the Army Corps of Engineers), the state may have less control, particularly if the activity affects the state's coastal zone but takes place on federal land (which is not, by law, subject to the state's management program). A requirement that such projects be "consistent" with the state program would thus seem to give a state some power over these federal actions that it would not otherwise possess; but, under sections 307(c)(1) and (2), it is the federal agency, not the state, that makes the consistency determination. And these direct actions need be consistent only "to the maximum extent practicable."

Most states do not see this weak provision as providing much clout over the federal agencies. In commenting on the OCZM regulations [11], a number of states requested that an agency engaging in a direct federal activity be treated as an "applicant" under section 307(c)(3)(A) if that agency requires a permit from another federal agency. This would subject the direct activity to the more stringent requirements of section 307(c)(3)(A), thereby giving the states more power over such activities. (OCZM rejected this request, citing the legislative history of the CZMA.)

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[11] Federal consistency regulations, op cit., p. 10513.

Another -- and perhaps larger -- area of conflict has been the 307(c)(3)(B) provision that makes those federally licensed and permitted activities that are "described in detail" in an OCS plan subject to a consistency determination. A state and its localities have jurisdiction over those OCS-related facilities located on land or passing through state waters, e.g., pipelines, support bases, or processing plants; but a state has no jurisdiction over activities that take place beyond the boundaries of the state's territorial sea (usually three miles from shore). As the Santa Ynez controversy has demonstrated [12], it is possible for the oil industry to develop the OCS -- in a way that may affect a state's coastal zone -- without ever entering into the state's sphere of jurisdictional influence. The API v. Knecht suit evinces a real concern that federal consistency will in fact extend the range of state powers.

This federal consistency power struggle certainly belies the title given to section 307 in the CZMA: "Coordination and Cooperation."

The failure of federal consistency to reduce conflict is the result in large part of the failure of the "macro bargain." The national interest and federal consistency provisions have not altered in any salutary way the underlying incentives regarding any particular siting decision. In fact, this "bargain" has created some new sources of conflict. National actors always want to invoke the "national interest" part of the bargain (as they interpret it) to skew the decision their way, while state and local actors always want to invoke federal consistency to accomplish the complementary objective.

The distribution of power is a critical question: it corresponds to setting the rules of the game. Congress should

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[12] For a discussion of the Santa Ynez controversy and of the current state and federal roles in OCS development, see the OCS Case Study in Volume 2 of The CTARP Energy Facility Siting Study.

decide in some clear fashion the appropriate extent of state veto power over direct federal activities and OCS activities. This might be done via federal consistency (as the OCS Lands Act Amendments reported out of House-Senate conference in late July of this year suggest[13]);but it should be done with the ultimate realization that federal consistency is not at base a method of resolving energy facility (or other) siting conflicts.

Conflicts over energy facility siting arise primarily from the unequal distribution of costs and benefits inherent in such large projects. These conflicts cannot be "coordinated" away by increasing communication among levels of government. While such communication is clearly a good thing, real conflict resolution can occur only through a system -- such as bargaining -- that permits strategic transfers from gainers to losers on a case-by-case basis.

If federal consistency is to contribute to conflict resolution, it must contribute to a bargaining system. For example, one could strengthen (or merely reinterpret) the provisions of section 307(h) to make the invocation of these mediation powers a more routine matter; the Commerce Department would then be able to operate as a case-by-case facilitator of bargaining.

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[13] The amendments as proposed to the full House and Senate would amend federal consistency to reduce from six months to three the time a state has to review an OCS plan for consistency with the management program.

G. Impact Assistance.

The CZMA also contains another more obvious "macro bargain": the Coastal Energy Impact Program.

The national (i.e., federal) side of the bargain has three parts:

- the revenue sharing-like "formula grants";
- impact assistance, in the form of loans and grants for specific public infrastructure and environmental projects; and
- planning grants.

And what does the nation get in return? Senator Ernest Hollings (D - S.C.) put it this way in introducing the Senate version of the bill that created the CEIP.

> Mr. President, everyone recognizes that the Nation is going to have to pay a price to keep, and hopefully increase, its domestic energy supplies and capabilities in lieu of much greater costs later on. I believe the way we should do this in the coastal zone is by planning, through the States, to avoid undesirable impacts and to compensate the coastal states which experience them [14].

Compensation is the price the nation must pay for domestic energy and "capabilities" -- OCS development and the siting of energy facilities. Let's examine the "bargain" in detail.

The formula grant provisions of section 308(b) are the most clearly compensatory aspect of the CEIP. The moneys Congress appropriates each year are proportioned out to coastal states on the basis of the OCS activity -- acres leased, oil/gas produced, oil/gas landed -- in or adjacent to each state during the previous fiscal year. The state can then use its allotment for such projects as the provision of public facilities and services or environmental protection and restoration. (The recent OCS Lands Act Amendments modify the

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[14] Legislative History of the Coastal Zone Management Act U.S. Senate Committee on Commerce, December, 1976, p. 630.

CZMA to raise the formula grant authorization to $130 million/year and to remove most of the administrative strictures on state use of the funds.)

Since the amount a state receives depends on the amount of OCS activity off its shores, the formula grants provide a state, in theory, some incentive to look favorably on OCS leasing and development off its shores.

In fact, though, the formula grants have not in most cases changed the underlying state incentives to support or oppose OCS development. The problem -- once again -- is that the bargain is too "macro," that the terms of the bargain are not attuned to and do not arise from the specifics of the siting (OCS development) decisions in each state. Because the allotment is based on a rigid formula, some states stand to receive far more than would be necessary to ensure their cooperation in OCS activity, while other states are likely to receive far too little to make OCS development in their interest.

For example, Louisiana has had significant offshore oil activity for more than two decades; this activity, along with onshore drilling and numerous support operations (ports, refineries, platform construction), forms a major pillar of the state's economy. There is little reason to believe that the pace of OCS leasing and development off its coast would be significantly accelerated by -- or would require any acceleration by -- the promise of formula grants. (This is not to say that revenue sharing or impact grants to Louisiana and other such states cannot be justified on other -- i.e., equity -- grounds. One frequently hears the argument that such grants are appropriate (a) because the oil development that began in a less enlightened era created damage for which retroactive compensation is appropriate and/or (b) because grants of this sort are a traditional accompaniment to federal activities (e.g., army bases, inland mineral leasing) and it would be "unfair" to neglect similar treatment for OCS activity [15].)

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[15] During the Senate debate on the CEIP legislation, Senator Hollings cited the first justification (Legislative History p. 1022), while Senator J. Bennett Johnson (D-La.) cited the latter (p. 1032).

By contrast, a state like California -- which currently has an incentive to oppose further OCS activity -- is not likely to receive compensation from the CEIP suitable to persuade it to recede from opposition.

In deciding whether to oppose OCS development, the state must consider the uncertainty in Congressional appropriation as well as the uncertainty in a proportional allotment that depends on the level of OCS activity elsewhere in the nation; weighing potential formula grant allotments by their likelihoods could make the expected-value compensation small indeed. California thus might reasonably be expected to take a position regarding OCS development little different than it would take in the absence of the formula grants.

This is not to say that the formula grants will not turn out to be the deciding factor in the ultimate decisions of some states to support OCS development. But, even so, a state still has some ability (and some strategic incentive) to attempt to extract favorable development conditions or other compensation from the lessees. To the extent that a state has veto power over OCS development and there are no serious impediments to bargaining, an economically efficient and mutually satisfactory outcome should be possible absent any federal grants. And, although compensation from the federal government could in theory be a passable substitute for a bargaining arrangement, the formula grants of the CEIP execute the compensation in a clumsy and relatively ineffective fashion.

As Section F above discussed, a state has no formal veto power over OCS development; but a state does have resort to litigation and other guerilla warfare tactics as well as to the federal consistency provisions of the CZMA. The OCS Lands Act Amendments rejected a proposal to give state governors an outright veto over offshore exploration and development plans, opting instead to reaffirm the intellectually soft and legally untested consistency provisions of section

307(c)(3)(B). But if these provisions are interpreted strongly and the mediation elements developed fully, consistency could nevertheless prove more effective than the formula grants in encouraging agreement on OCS development.

There are two other major aspects of the CEIP: impact loans and planning grants.

The loans (there are also bond guarantees) are compensation of a less obvious sort. The reasoning is as follows: Rapid development because of coastal energy activity (the "boom town" problem) requires the locality to be farsighted and to provide new public facilities and services early enough that the anticipated massive influx of energy personnel can be accommodated smoothly. In most cases, new tax revenue will ultimately pay for this new investment. But there is a problem of risk involved in financing the "front end" of the investment: a potential boom town is seldom looked upon as a sure thing by municipal bond investors. Interest rates may be high or capital entirely unavailable. Since this "risk premium" is a real cost imposed on the locality by nationally beneficial energy development, the federal government will bear the risk by providing the necessary front-end financing through loans and guarantees with provisions for repayment (bail-out) assistance.

In fact, virtually no demand for CEIP credit assistance has materialized since the program's inception in 1976 [16]. This results in part from the high interest rate (between seven and eight percent) the assistance carries. (A high interest rate implies that the locality, not the federal government, bears the risk premium: under one philosophy, this is appropriate since the government should merely assure the availability of capital -- correcting an imperfection in the capital market -- and should not transfer benefits

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[16] Private communication with CEIP staff.

to the locality by paying the risk premium.) Another, perhaps larger, reason for this lack of demand is that many of the anticipated impacts -- notably those in Alaska -- have not materialized because (a) OCS exploration in the Gulf of Alaska has not been particularly successful and (b) the exploration and development that have occurred are being carried out largely by itinerant workers who live in the "lower 48" and commute to oil company facilities, seldom setting foot in local communities.

Once again: this sort of front-end "impact assistance," to the extent that it is a form of compensation for local costs, is a baroque scheme for doing what could be accomplished more effectively on a case-by-case strategic basis through bargaining.

The CEIP planning grants -- by contrast with the credit assistance -- are perhaps the most successful aspect of the program.

Like "coordination," "planning" has long been a buzzword panacea for strategic and intergovernmental problems like energy facility siting. But, just as the underlying conflicts in siting cannot be "coordinated" away, neither can they be "planned" away. Nevertheless, planning is important and can play a significant role in the strategic context.

Planning is a word with many meanings and connotations. In the most general sense, planning is information, awareness. In a bargaining situation, planning (in this sense) can enable an actor to perceive clearly the effects of siting, to understand fully the implications of each option. A bargaining agency that does not have its head together in this fashion can frequently find itself agreeing to an arrangement that is not truly in its interest [17].

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[17] Volume 2 of this study discusses in greater detail the role of analysis --"planning" -- in a strategic context.

Indeed, a bargaining system can work effectively only when all the actors have what is referred to in economic jargon as "perfect information." But information is costly; and, to the extent that some agents in the siting process (e.g., local governments) do not have the resources to undertake planning and analysis, there may be a role for the federal government to provide grants à la 308(c) to ensure a smooth working of the bargaining process.

But the federal government is not the only source of planning support; in some cases, actors can engage private suppliers of planning and analysis (consultants) to research -- and even manage -- the bargaining with other agents. The consultants might take the work on a speculative or contingent basis, receiving their fee out of the benefits they are able to win in bargaining for their client. Arrangements such as this are common in other spheres (notably law), and have already begun to appear in modified form in Alaska and the coal-development areas of the West.

In summary, while the CEIP formula grants do have merit in terms of pure revenue sharing, the tenuous, aggregative connection between the amounts disbursed and the actual adverse effects of energy facilities makes them ineffective as an inducement for accepting facilities with net national benefits. The CEIP grants represent a macro-bargain, but the structure of the conflict calls for a set of micro-bargains. The now defunct "net adverse impacts" approach was superior in this respect, but inferior with regard to administrative costs. The processes of cooperative analysis and ad hoc bargaining called for in this Study (and presented in detail immediately following) overcomes both these faults. Compansation is directly related to a particular facility's adverse effects during negotiations and comes from "gainers" - whether it be industry, or the federal, or state government. Additional administrative costs would be non-existent or

minimal because the processes are but modifications of the current environmental impact assessment process and the traditional permit process.

CEIP loans and bond guarantees are a remedy in search of a problem. Planning grants continue to be of great value as an aid to states and localities in establishing, exercising, and improving their techniques for evaluating and determining their interest in facility siting proposals.

CHAPTER IV. AN IDEAL FACILITY SITING PROCESS

The preceding chapters have presented several characteristics that a state's coastal management program should possess if it is to consider adequately the national interest in the siting of facilities. The value of presenting general characteristics is that they can be interpreted in practice in the manner most appropriate to the particular state in question.

But there are some dangers. Interpretation of general characteristics requires a sound understanding of the reasoning that lies behind those characteristics. The conceptual foundations presented in Volume 3 are intended to provide this sort of background understanding.

There may also be some difficulty in relating general characteristics to the real structure of the federal system. In response, the present chapter details a fairly explicit example of one process that embodies the general characteristics this Study recommends. Its goal: to ensure that facilities that are in the national interest are in fact sited and those that are not in the national interest are not sited.

Of course, specificity of this sort also holds dangers -- notably the danger that the necessary details of the process may obscure the larger message. This is only a demonstration process, not strictly a recommendation. And it is only one of many possible ways of putting into practice the recommendations of this Study. The authors have no illusions about the ease of translating the ideal into the real; but they do believe that ideas are more persuasive when presented in specific (if still ideal) form.

After an introduction reviewing the operational definition of the national interest in the siting of facilities proposed in this Study, the next section discusses the institutional mechanisms needed to initiate the sample process described in this chapter. The next three sections

elaborate on the nature of the process, dealing with procedural decisions, cooperative analysis, and bargaining. Next, we discuss how this process can become a mechanism for cooperative domestic policy formulation within the federal system. Finally, this chapter makes some observations about the politics of process recommendations.

A. Introduction.

The siting of a facility is in the national interest if and only if it is in the interests of each party with effective veto power over the construction and operation of the facility. For facilities that have net national benefits, it is usually, but not always, possible to redistribute surplus national benefits such that each party finds the siting of the facility in its interests. If a suitable redistribution cannot be found, then the siting of the facility is not in the national interest, despite the fact that it may be expected to produce net national benefits.

The process this chapter describes is directed, first, toward determining whether net national benefits can be expected and second, toward improving the chances that a suitable redistribution can be found. The two fundamental elements of the process are the cooperative preparation of impact analyses within and among levels of government and the use of such analyses as the foundation for negotiations regarding suitable redistributions.

This Study has repeatedly argued that negotiations or bargaining among parties with effective veto power is the best means of resolving conflict over the expected distribution of siting effects. Indeed, bargaining of one sort or another goes on now in most siting controversies. To encourage bargaining is thus, in one sense, merely to follow the management principle of encouraging successful informal organizations to flourish. The principal advantage of bargaining is that no party is required to accept a package that is not in its interests. The advantages of formalizing and making public the natural bargaining process are that:

(a) the pattern of substantive results -- of siting precedents -- will provide guidance and predictability to developers in preparing proposals;

(b) compensation from gainers to losers is tied directly to the adverse effects of a proposed facility;
(c) administrative costs are minimized because the suggested processes are but modifications of the traditional environmental impact assessment and permit processes;
(d) facilities without net national benefits will not be sited, and facility proposals with net national benefits will generally modified voluntarily such that they are in the national interest, rather than imposed by coercion; and
(e) public opinion can serve as an incentive for fairness, blunting the ability of one party to use its tactical strength to crush another.

Within a level of government, cooperative analysis can help form a basis for understanding and considering the true interests of the government's constituency. Cooperative analysis among levels is desirable in order that there be a common finding of the nature and distribution of effects associated with a facility proposal, which can in turn provide a sound framework for negotiations.

B. Identification of a Network.

The first step in designing this siting process is to identify a "network" of governmental officials charged with managing the processes of cooperative analysis and negotiation. At a minimum, this network would be defined at the federal level and at the level of the coastal states. Ideally, the network would also extend to local governments and to inland states.

Within each level of government, there are generally several agencies with functional jurisdiction or permit authority over a proposed facility. Ideally, the diverse views of specialized agencies at each level should be considered and integrated, presumably by the chief executive, to form the basis for a final decision. Only when an organization gets its head together in this fashion can it "adequately consider" its own interest effectively. (In practice, of course, legislatures at every level have generally given effective independent veto power over energy facilities to narrow-purpose agencies; and, unfortunately, integrated decisions are not likely to be achieved within levels for a long time. This problem seems increasingly severe as one moves from local to state to federal government.)

There are several alternatives for identifying the federal "node" of our suggested network. First, it is conceivable that Congress or the President could establish an Office of Cooperative Siting Analysis within the Executive Office. It might reside, for example, within the Domestic Council or the Office of Science and Technology Policy. This arrangement is ideal in the sense that real integration of the diverse views of federal agencies could presumably take place.

The second alternative involves moving from real integration to mere cooperation. Congress or the President could establish an Interagency Committee for Cooperative Siting Analysis. While decision-making regarding the structure and

techniques of analysis would naturally be by consensus or by independent authority, the federal Office of Coastal Zone Management could serve as the permanent facilitator for such cooperative efforts. Of course, OCZM would not have the authority to promulgate a final federal position on substantive matters. Rather, for coastal facilities of national concern, it would manage the procedural aspects of cooperative siting analysis within the federal government.

There is a third alternative, which we do not favor: the establishment of a lead substantive agency. One might argue that cooperative analysis should be directed by the Department of Energy, the Department of Interior, the Environmental Protection Agency, the Council on Environmental Quality, or some other plausible candidate. But energy facilities have a wide variety of effects; and no federal line agency has or will have sufficiently comprehensive jurisdiction. Attempts to create lead agencies often incite wasteful jurisdictional squabbles within the Executive Branch, and ultimately lead to conflict resolution via Congress or the Judiciary.

At the state level, there are several analogous alternatives for identifying nodes within the network. First, Offices could be established within the executive office of the governor. In addition to allowing real integration, this option has the advantage of allowing uniform treatment of coastal and inland facility proposals. The second option is that of designating the state's coastal management agency to coordinate the process of cooperative analysis, since this office is already charged with executing the state's 305(b)(8) energy facility planning process. Although the organization of state governments varies considerably, there should actually be less difficulty in establishing mechanisms for cooperative analysis than at the federal level -- in part because of progress in coordination already made via 305 and 306 grants. If a state coastal management agency has established comprehensive functional jurisdiction and a principal role in the

the siting of coastal energy faciliites, the designation of a lead agency other than the coastal management agency would be a step backward.

While it is necessary to identify nodes and to maintain them permanently at the federal and state levels, it is probably too expensive to do so at the local level unless the actual administration of a state's program is carried out primarily at that level. In this case, 306 funds could be used to supplement local sources, and 308 planning funds could be used on an ad hoc basis to assist localities in participating in the process of cooperative analysis.

We have so far discussed the identification of a network for cooperative analysis. This same network can and should also serve as a basis for coordinating negotiations. For expository purposes, we shall call each node of the network an Office, supervised by a Director. One might envision each Office as being staffed by a group of hard-headed technology assessment research coordinators and a separate group of lawyers or mediators skilled in technical negotiation. The research coordinators would have the primary role early in the process. Ideally, the research coordinators and chief negotiators would staff their teams with personnel drawn on detail from concerned agencies, particularly those with effective veto power. If these individuals are accorded the authority to make trade-offs and mediate differences between agencies, then they act more as directors or managers. On the other hand, if the agency representatives retain essentially independent veto power, then these individuals function more like facilitators.

Although it is possible to argue from a theoretical perspective that the network should be identified within executive offices, it might be better in practice if it were established within the context of coastal management. Most of the mechanisms needed for cooperative analysis and negotiation are already in place in coastal management programs;

the problems would thus be more in the nature of accepting new roles and responsibilities than of adopting a new world view and a new form of government. An appreciation of the balance of authorities within the federal system is intrinsic to the CZMA.

C. Procedural Decisions.

If a network such as that described above can be identified, then new options exist for conducting analyses and making decisions regarding proposed facilities. There are basically three modes of operation, corresponding to increasing degrees of cooperation.

(1) Proposals could be processed as usual in a relatively independent way by concerned agencies.
(2) Proposals could be dealt with using the coordinating and facilitating services of the Offices on a intragovernmental basis.
(3) Proposals could be evaluated using the intergovernmental capabilities of the network.

This section presents an example of the steps which would be necessary in order to make this procedural decision.

The first step or trigger is the submission of an informal proposal by the developer or group of developers. While the developers will usually be private firms, public agencies may be considered developers when they seek to take actions that require approval of other governmental entities, or when their actions are a necessary prerequisite to the activities of private firms.

Because each proposal should be judged independently, developers face a difficult task in determining an appropriate scope. Suppose, for example, that a developer contemplates constructing two facilities in sequence, which, in combination with a facility planned by another developer, will be profitable to both. The first developer must consider the advantages and disadvantages of submitting separate proposals for each facility, of combining the two, and of approaching the second developer for the purpose of submitting a joint proposal. While separate proposals would be processed more quickly than a comprehensive proposal, it is not clear that a set of separate proposals would be processed more quickly. Furthermore,

since each proposal is judged independently, there is a clear risk that one facility deemed necessary by the developer to the entire complex would be denied necessary permits. By proposing separately a deepwater port and a refinery, the developer might get the port and not the refinery or vice versa.

At any rate, the informal proposal should be submitted to the Office at the "lowest" level in the hierarchy, and to other Offices whose levels have agencies with effective veto power over the proposed facility. The proposal should include:

- a general description of the proposed facility complex with conjectures of possible related future developments;
- a complete statement of the set of permits or approvals required from all levels of government; and
- a recommendation as to which of the three procedural modes outlined above is appropriate.

Mode (1) -- the "business as usual" mode -- would be appropriate for facilities of local concern, such as small light industrial plants and commercial establishments, and for facilities which are generally non-controversial. Any facility which confers significant external costs on an adjacent locality without veto authority cannot usually be handled via this mode. This situation is the converse of the "uses of regional benefit" case, and will generally require a stronger state role.

Mode (2) -- the intragovernmental mode -- is appropriate when there appears to be strong differences over the desirability of a facility among agencies within a level. This phenomenon occurs when independent veto authority is granted to narrow-purpose adversary agencies. In such a case, the true interests of the level can be ascertained only after

reconciling or trading off the conflicting interests of the lesser adversaries. The developers of major energy facilities would probably request this mode quite frequently.

Mode (3) -- the intergovernmental mode -- is appropriate when there are severe distributional inequities within the state or the nation as a whole. Here, severe has an absolute rather than a relative meaning: although a project may create millions of dollars of aggregate benefits, it has a severely inequitable distribution of effects if, for example, it would impose net costs of $50,000 on a community of 1000 inhabitants. The existence of opposition to a proposal implies the possibility of severe distributional inequities. Verification requires additional analysis, preferably in a cooperative manner.

In the preceding paragraphs, we have presented the principles according to which the procedural decision should be made. It remains to say how the decision can actually be made. For expository purposes, we shall continue to refer to the network as consisting of Offices headed by a Director. The Director must ultimately make the procedural decision according to his judgement; but, fortunately, he has two types of helpful information. First, he has the developer's recommendation and supporting arguments. If these arguments are to be sound, an estimate of the nature and distribution of effects must be included. For example, the developer would provide an estimate of the extent of the market he intended to serve, or the present value of producer and consumer surplus, of anticipated increases in local employment and tax revenues, and of possible environmental loads such as air pollution, water pollution, and changes in land use. These estimates constitute a "back of the envelope" impact analysis -- a "scoping out" of the effects to be considered more fully in later analyses. These estimates should allow the Director to determine which other Offices within the network might be concerned with the facility

and interested in undertaking cooperative analysis. The second type of useful information is, of course, the list of required permits, which in turn implies which other Offices have received the informal proposal.

The final procedural decision is arrived at after considerable communication and consultation within the network. The Director communicates the decision to the developer and presents supporting reasoning. He may also comment informally on the nature and scope of the proposal. The developer may appeal the procedural decision to an administrative law judge, may withdraw his informal proposal and submit a new proposal, or may accept the decision and submit the formal proposal that will serve as a basis for cooperative analysis.

If the network for cooperative analysis and negotiation is established within the context of coastal management, then several troublesome provisions of the CZMA can be interpreted in a new light. First and most important, the existence of a state Office, along with procedures for aiding in the establishment of local Offices and for complying with requests for cooperative analysis and negotiation, would constitute conclusive evidence that a state's program could adequately consider the national interest and could accommodate uses of regional benefit. Second, if federal permits were required, the failure of a federal agency to participate when requested by a state office could be interpreted as evidence of violation of the federal consistency provision. While the Secretary must retain the right to override a state's decision in rare cases when national security is an issue, the failure of a federal agency (or a state office) to participate in cooperative analysis and negotiation should be considered most seriously by the Secretary in mediating disputes between the states and the federal government. Fourth, this entire process seems consistent with Section 309 of the Act regarding interstate coordination (which, unfortunately, Congress has never funded).

Indeed, the process of cooperative analysis and negotiation presented here is an example of the called for "effective mechanism, and (adoption of) a Federal-State consultation procedure for the identification, examination, and cooperative resolution of mutual problems."

D. Cooperative Analysis.

The preceding section contained a detailed description of how a network can be identified and how procedural decisions can be made to bring about a process of cooperative analysis and negotiation. The purpose of this section is to describe how the network would actually go about doing cooperative impact analysis.

The purpose of doing impact analyses cooperatively rather than independently is to set forth in one volume the agreements and disagreements of the participants regarding the nature and distribution of effects induced by the proposed facility. This in turn serves as a basis for subsequent negotiations regarding proposed redistributions. Note that we use the word redistribution to refer to the effects of any modifications of the original proposal, e.g., stipulations regarding construction and operating procedures, replacement of environmental losses, cash transfers, or agreements regarding the liability of the developer. Cooperative analysis should prove less expensive in the aggregate because duplicative research would be eliminated. Direct participation by the developer should also improve the accuracy of technological data and educate government officials of the potential for proposed modifications.

The techniques of impact analysis used in these cooperative analyses would resemble those presented in the following volume of this study. These techniques can and should be incorporated into the existing NEPA and CEQ guidelines for doing environmental impact statements and reports. The essential characteristics of the impact analysis techniques we recommend are summarized below.

First, the analysis should focus on the decision at issue. That is, the analysis should be restricted to presenting the nature and distribution of effects associated with each of the alternatives. More basic and descriptive scientific research,

such as the data and mathematical reasoning leading to the construction of an economic input-output table or an ecological systems model, is not germane to the decision document. The end products of such basic research may, however, be presented and utilized to develop and defend projections of the nature and distribution of effects. The point here is that decision-oriented impact analysis uses at the start of each cycle the information that is currently available. It will occasionally turn out (as a result of performing sensitivity analysis) that the decision or interest of a participant hinges critically on the state of information regarding a particular effect. In such a case, the amount worth spending on additional basic research can be determined, and after the completion of such research, another cycle of analysis is done.

Second, and particularly important for the process we recommend, is the requirement that the analysis identify the distribution of effects among participants. A party's interests are directly determined by valuing and comparing the effects received from different alternatives. Hence, for controversial facilities, the analysis will generally show some parties to be gainers and others losers. Cooperative analysis does not imply that a single positive or negative judgement will be attained for the facility as originally proposed.

Third, the analysis should express the nature and distribution of effects probabilistically. Scenarios are a useful way to describe discrete alternative sets of actions. However, given any particular set of actions under consideration, information regarding induced effects is best expressed probabilistically.

Fourth, the analysis should identify clearly the differences in values and subjective probability assessments among participants. Since probability assessments depend solely on the assessor's state of information, cooperative analysis would

tend to produce convergent assessments among participants. [1]

Finally, each party should value external costs in relation to market benefits. There are basically two ways of doing this. The direct way is that of constructing complex cause-and-effect models to indicate the probability that a given action will result downstream in a series of economically valued effects. For example, one might attempt to calculate the impact of destroying wetlands on the productivity of a connected fishery, and hence on the market value of future catches. Or one might attempt to determine the actual increase in diseases and deaths from pollution increments. While this approach is the ultimate key to valuing external effects correctly, it is expensive, difficult, and time consuming (although, once completed, such models can be re-used to analyze other decisions).

The indirect way of valuing external effects is by comparing them with market effects. For example, suppose that the construction of a necessary coastal-dependent facility will with certainty and without regard to the particular site result in $100 million of market benefits and the destruction of 20 acres of wetlands. An official who asserts that this loss of wetlands alone would cause him to deny a necessary permit is implicitly valuing wetlands at $5 million per acre. Of course, in reality, things are not quite so black

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[1] For example, it is sometimes asserted that federal officials and local residents assign different probabilities to or have different values regarding, say, a catastrophic spill of liquefied natural gas (LNG). The assignment of different probabilities is likely to the extent that the officials and residents have different information. But their values are probably similar -- as can be verified by considering what would happen if the residents became the officials and the officials the residents. The real issue in this LNG example is in the distribution of effects, not the probability of spills: given its location, a catastrophe would obviously affect the residents more than the officials.

and white. Effects vary from site to site; they are not known with certainty; and the notion of "necessary" depends critically on "higher" policy decisions. Nevertheless, with additional effort and some careful reasoning, it is possible to overcome these real complications. A sound body of literature regarding this problem is developing rapidly in response to the scientific difficulties of pursuing the direct route.

In the "business as usual" mode, the Director could either take no action or could simply staple together the developer's formal proposal and the independent analyses and decisions of the concerned agencies within his level.

In the intragovernmental mode, the Director could appoint a research coordinator from his staff, who would then be responsible for structuring a comprehensive and integrated analysis document. The project staff would ideally be drawn from the concerned agencies, on temporary assignment. This corresponds to the "matrix" mode of organization. Alternately, technical aspects of the analysis could be "farmed out" to consultants, although excessive use of this practice is not advisable because of its effect on agency morale and because technical consultants are sometimes politically naive. In no case should the analysis projects be undertaken by any sort of permanent staff within the Office.

The procedures for conducting cooperative analysis in the intergovernmental mode are similar, except that the participating research coordinators from each level jointly have responsibility for the structure of the analysis. Ad hoc or general agreements could be reached regarding costs, manpower, and the use of facilities.

The results of cooperative analysis, along with a compilation of proposed modifications to the original proposal, should be published in the form of a draft environmental impact statement. Modifications (such as permit conditions) to redistribute effects could be proposed by any participating

party. The compilation would be made jointly by the chief project negotiators, and would serve as an initial agenda for the subsequent bargaining phase.

E. Bargaining.

In the United States, the word bargaining seems to have a bad connotation. One imagines shady characters in smoke-filled backrooms wheeling and dealing without regard for ethics or principle. Unlike consumers in many other cultures, consumers here take announced prices as given and do not bargain with the seller. An extreme view might be that bargaining is un-American.

In fact, though, quite the opposite is true: bargaining practices are common in American life. Most people do in fact bargain when making major purchases such as a car or a house. Out-of-court settlements, labor-management negotiations, and indeed negotiations regarding all types of contracts are examples of bargaining.

The essence of bargaining is that the participants agree to consider adopting alternatives to the status quo and that no alternative can be adopted by the group unless a critical proportion consents. In the case of voting, the critical proportion is set a priori to be a simple majority, or perhaps other fractions such as three-fifths, two-thirds, or three-fourths. In the case of facility siting, the participants include all agencies with effective veto power, whether integrated within a level or not, and, or course, the developers. Since veto power is accorded a priori to the participants, the critical fraction in facility siting is 1: unanimous consent is required. Each party evaluates the alternatives (including the status quo) according to how each alternative affects that party; notions of altruism are not precluded though. A party finds an option "in its interest" if it is the best among feasible alternatives. In a bargaining situation, alternatives must be feasible not only in a technical sense, but also in a tactical sense. Hence, a technically feasible option that is good for all parties but one is not tactically feasible with a unanimity rule because that party will exercise its veto against the option.

Bargaining over proposed redistributions should begin with the publication of the cooperative impact analysis document. While it is best that the rules of bargaining be established by the participants, the following characteristics are desirable.

First, the participants should be restricted to those who participated in the cooperative analysis phase. The developer would always be a participant. This restriction is desirable in order that all the negotiators work with the same set of facts, including areas of agreement and disagreement. While all parties with effective veto power should certainly participate, it might also be desirable to encourage participation by adjacent states and localities that would be significantly affected by the proposed facility. [2].

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[2] Currently, when an adjacent unit considers itself a net loser, it has little recourse but to sue for damages after the fact, or to seek to enjoin approval by the principal units. If a losing adjacent unit participated and made a good case of its situation, and hence had an effective legal threat against the principal units tending toward approval, the principal units and the developer might be able to avoid the expense and delay of judicial resolution by modifying the proposal so that it was no longer contrary to the adjacent unit's interests.

Conversely, when an adjacent unit considers itself a net gainer, it might consider joining with the developer to make an offer that is in the principal state's interests - particularly if the adjacent state believes that the proposal might otherwise be vetoed. The offer might be of a log-rolling nature; for example, the adjacent state might agree to the siting of some other facility that has benefits for its neighbor. While this has conceptual appeal, we realize that there are many customary and legal impediments to these sorts of transactions between adjacent governmental units.

Second, the bargaining phase must be of fixed duration, unless unanimously extended by the principals. This is necessary in order that there be a real possibility of achieving no agreement, that is, of maintaining the status quo. Such a threat would encourage the developer to be forthcoming in considering modifications and the government negotiators to be measured in their demands. As we have said, if the proposed facility is truly in the national interest, then it can be modified so that it is in the interest of all principal parties; and, consequently, there will be strong forces leading to the discovery of a suitable set of modifications. If no agreement is reached, then the proposed facility (given the existence of this process) is not in the national interest, or else the negotiators were, as a group, incompetent.

Third, the bargaining must be open to the public and the press. While it may not be advisable to open every working session, it is necessary that the public have complete access to the list of proposed modifications, i.e., the bargaining agenda, and associated analyses of their effects. The reasons for this requirement are that public opinion is the most effective source of equity or fairness considerations during bargaining, and that the public, and not government officials, remains the best judge of the public interest. The introduction of fairness considerations into bargaining is necessary to discourage any principal from exercising tactical advantages to the fullest. (There may be reason to suspect that much of the sociological uneasiness with bargaining derives from imagining the possibility of unfair outcomes.)

In order for bargaining to be effective, the principals must have the flexibility to consider and propose alternatives. This requirement would likely be more of a problem for governmental units than for private developers. There has been a tendency in recent state and national legislation, particularly with regard to environmental matters, to set forth

rigid policies. The effect of this practice is to transform an objective into a constraint. Since the addition of constraints to a choice problem can never improve welfare, this is evidently an unwise practice. [3]. This is not a criticism of the intent of environmental legislation: there is a clear need to express public preferences for preserving and improving the quality of the environment and for developing means to reflect these preferences in economic decision-making. It is desirable that the bargaining principals express their preferences in the form of general policies, objectives, or guidelines -- but that they retain the ability to make tradeoffs in the face of a limited set of alternatives.

Finally, the last step of this small cooperative decision process is the publication of a final decision document or environmental impact statement. In the event of agreement, the specifics of the final compromise should be set forth and defended as in the interest of each participating party. In the event of disagreement, each principal party should describe generally the nature of and defend those modifications that would have been acceptable to it on modifications proposed by other parties that they themselves rejected. Together with the preliminary analysis, this final document would serve as a public record of the decision process, a guide to developers as to what types of proposals are likely to be successful, and a guide to government negotiators as to what sorts of modifications are likely to be accepted by developers.

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[3] The implications of this optimization result for national policy-making are discussed more fully in Volume 3, Chapter V.

F. Cooperative Policy Formulation.

We have presented this sample cooperative decision process in the context of coastal management and the siting aspect of the energy problem. But there is another critical aspect of the energy problem, namely the resolution of broader energy policy issues, that could be facilitated using a process resembling the one described above.

It is instructive to distinguish three separate but tactically inter-related substantive issues in a typical energy facility siting controversy. These are the consumption/conservation issue, the supply alternative issue, and the siting issue proper. As artificially isolated, the problem in the siting issue proper is that of selecting the best site given the need for the facility's energy product and given the particular choice of the supply alternative. For example, if all parties agreed that an increment of electricity generating capacity was desirable, and if all parties agreed that the appropriate technique was that of nuclear fission, then remaining differences would reflect controversy over the siting issue proper. The question would reduce to "Where can we put it?" In contrast, controversies regarding the need for an increment of energy supply and regarding the appropriate technology are energy policy controversies.

In fact, of course, there are very few if any real siting controversies that are devoid of policy considerations. There are at least two reasons for this. First, since dependable institutions for redistributing aggregate net benefits to counteract local net costs do not exist, local residents find it tactically wise to dispute the policy implicit in a proposal (i.e., the technology, the need) in addition to the nominated site. If bargaining were institutionalized as we suggest, negotiations could focus on the real problem of the distribution of effects rather than on the variety of tactically complementary side issues. But if decision-making over the

energy system continues in the same manner as currently, it is totally rational for local residents who would suffer net costs to use whatever means are available to delay or defeat the facility as proposed.

The second reason that the siting and policy issues are mixed is that there is no effective mechanism for generating meaningful energy policy, apart from the policy that develops de facto after a sequence of siting decisions. The country has been trying for more than eighteen months to develop a national energy policy -- with little success. The problem, of course, is that the activity has taken place primarily at the federal level, presumably because the federal government has jurisdiction over the entire nation. But since policies are only important to the extent they can be implemented, it is obvious that federal energy policies requiring the siting of facilities are useless if the states are to retain their constitutional authorities over land use and public welfare. The solution to this apparent dilemma is clear. An implementable national energy policy can be developed only as the result of a process of cooperative analysis and decision-making within the federal system.

An effective national energy policy is desirable primarily to guide developers in planning for capital investments which will ultimately be acceptable to society. The current lack of policy introduces unnecessary uncertainty and waste into the economy, whose vitality is already being sapped by other forms of questionable government intervention. Also we are told by our foreign allies and energy suppliers that the development of a national energy policy would aid them in achieving their economic objectives.

In light of these considerations, the network described previously should be utilized as a means for developing national policies over the energy system. From an ideal policy perspective, it is best that the Offices be established within

the executive offices of the various governmental entities, and that the network extend to inland states also. But as pointed out previously, such an extensive network represents a dramatic change from present mechanisms. Hence, practicality suggests that the network be initiated in the context of coastal management, where most facility siting controversies occur anyway and where much of the necessary spirit and apparatus for intergovernmental cooperation already exists as a result of several years of coastal management program development.

To be explicit: we suggest that cooperative policy formulation be carried out periodically (e.g., every three or five years) following essentially the same steps as described above. Analogous to the developer's proposal is a draft policy prepared cooperatively by the appropriate federal agencies, under the auspices of the Interagency Committee. The next step is a process of cooperative analysis, with federal agencies, state Offices, and representatives of the energy supply industries participating. As before, the analysis should emphasize the nature and distribution of effects associated with the draft comprehensive policy and those modifications proposed by the participants. Negotiations would not be concerned with actual redistributions, since no specific facilities would be sited via general policy. Rather, negotiations would focus on modifications to comprehensive plans which would, in a general sense, increase the likelihood that energy system activities would be conducted in the future so as to be in the interests of the participants. The significance of the final comprehensive "plan" or national energy policy can be measured by the degree of support it gains from the participating states and industrial representatives.

G. Politics and Process Recommendations.

As the case studies of the following volume indicate, many elements of the suggested process of cooperative facility siting and policy formulation are in fact being carried out on occasion. Nevertheless, if a network and procedures resembling those described above were adopted on a formal and comprehensive basis, then the result would be a dramatic change in the way the "energy game" is played.

In contrast to substantive proposals, recommendations for procedural change require nearly unanimous support for eventual implementation. For example, note that legislatures generally require two-thirds or three-fourths support for passage of procedural motions, but only a simple majority for substantive action. The reason for this, of course, is that deliberations regarding substantive alternatives are governed by existing procedures, and that significant changes in procedures generally induce changes in the pattern of future substantive outcomes. In a strategic situtation like the siting of facilities, the interests of each party in substantive options can be relatively well defined because of the explicitness of the options. On the other hand, for procedural options, greater uncertainty exists regarding their ultimate effect on substantive outcomes. In the presence of such uncertainty, principles of fairness and equity become a proxy for explicit preferences in the determination of interests. While we have no objection to the use of equity principles in evaluating our process recommendations, it is possible to predict at least some of the substantive effects of our proposals on interested parties. We shall discuss briefly the ramifications of our process recommendations on private developers, state and local governments, federal executive agencies, Congress, the courts, and environmental interest groups.

A central theme of these recommendations is that the principal public agents in energy facility siting decisions should be the executive branches of the various levels of government. This is a deliberate attempt to reduce the role of legislatures and the judiciary in the decision process. Perhaps idealisitically, we believe that the role of legislatures is to establish the institutions and general policies (or preference statements) needed by the executives to make siting decisions, and that the principal role of the judiciary is to ensure that decisions are made in accordance with legitimate procedures. The tendency of these branches to get involved in the substance of facility siting controversies whenever disputes arise between national regions or interest groups has effectively undermined the ability of the executives to carry out their duties. So we argue for a diminution of the role of these branches in substantive decisions regarding the energy system; but we argue for a renaissance of interest within these branches over procedural decisions. Evidently, individual justices and members of legislatures will react to process recommendations like these in large part according to whether they see their roles as substantive or procedural. Because of the potential for greater objectivity, we expect that developers would favor executive decision-making over facility siting.

The dominant theme of these recommendations is that substantive facility siting decisions should be made explicitly in accordance with our federal system of government. While this theme is grounded in the Constitution, it also makes good sense and serves as the basis for our suggestions for interlevel cooperative analysis and negotiation. Finally, it is the basis for our operational definition of whether or not a proposed facility is in the national interest.

Now, it is clear that the thrust of this theme suggests a diminution, or at least a stabilization in the sense of parity, of the authorities of the federal government over

the siting of energy facilities. Unfortunately, proposals have been made to reinterpret or rewrite the national interest provision of the Act so that it mandates participation in coastal management and, even more seriously, mandates states' accommodation to federal proclamations that the siting of one or another facility is in the national interest. (Of course, requiring accommodation would undoubtedly require mandating participation.) Proposals of this sort constitute a dramatic reversal of the philosophical understanding that permitted original passage of the CZMA.

In summary, our emphasis on the federal system could be expected to be resisted by those individuals who, for whatever reasons, seek to augment federal influence over facility siting by eliminating or weakening the effective veto power currently granted states and localities. Conversely, we would expect that states and localities would support the thrust of our recommendations because of the guarantee that they need not acquiesce to facilities not in their interest.

We expect that the emphasis on intralevel cooperation will not be popular with anyone but the general public and perhaps the judiciary. The principal parties to facility siting decisions have become accustomed to operating in an adversary mode. Legislative committees and agencies have been formed to advance the interests of distinct groups within the nation, corresponding roughly to energy production and environmental protection. As long as these interest groups consider their differences irreconcilable and so continue to act antagonistically rather than cooperatively, the committees and agencies will find their power and effectiveness advanced by organizing accordingly. Indeed, the situation has become so severe that it threatens the federal system itself. The nation's government is becoming effectively partitioned according to conflicting interests rather than spatial jurisdiction.

It is important to attempt to predict the response of developers to proposals like ours. Inasmuch as our proposals, if seriously considered, would increase industry's uncertainty over the nature of the future regulatory regime, they might, for this reason, be opposed. Of course, once a proposal was clearly under serious consideration, it would be evaluated according to its merits. We expect that developers would favor a process of cooperative analysis, particularly one in which their expertise was essential. We expect that developers would favor intralevel cooperation to the extent that it discouraged vetoes based on narrow criteria. On the basis of past experience and a primordial longing for a laissez-faire economy, developers might, however, be suspicious of reaffirming the legitimacy of state and local vetoes over proposed facilities. Indeed, the willingness of developers to participate in the redistributive negotiations we propose is directly related to their acceptance of responsibility for adverse external effects of production. We expect that industry would favor the decision-oriented impact analysis techniques we propose and would appreciate whatever guidance is implicit in the sequence of final decision documents.

In the preceding paragraphs, we noted our expectation that developers would be mildly favorable to our process recommendations. This need not imply that environmental groups should be opposed. The emphasis during analysis on specifying the nature and distribution of effects in anticipation of redistributive negotiations should ensure that localized environmental effects are minimized and compensated. The requirements that these effects be documented by any interested participant and that negotiations be open to public scrutiny ensure adequate consideration of the national objective of preserving and enhancing the quality of the environment.

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